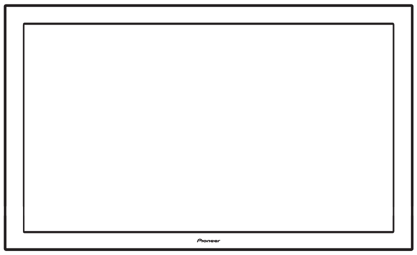
Service Manual



PDP-LX509A

ORDER NO.
ARP3513

FLAT SCREEN TV

PDP-LX509A
PDP-C509A

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
PDP-LX509A	YP	AC 240 V	Only 30 units
PDP-C509A	YP	AC 240 V	

To distinguish these models from other model, confirm the serial number.

	Model Name	Serial No.	Order No.
This Model	PDP-LX509A/YP, PDP-C509A/YP	&&&&0XXXXX&&	ARP3513
Other Model	PDP-LX509A/YP1	&&&&1XXXXX&&	ARP3525

&: Alphabetics X: Numerics

There are two type of different models in PDP-LX509A. Differences between these models are using different characteristic of glass panel. The DIGITAL Assy and Service Panel Assy between them are different. Therefore, when these parts are to be replaced, be sure to use the parts that are specified in each manual. If the parts of this model are accidentally used in the other model, it may result in abnormal electrical discharge or reduction in life expectancy of the Panel.

For details, refer to "Important Check Points for good servicing".

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SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols ▮══╪ (fast operating fuse) and/or ▮══╪ (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible ▮══╪ (fusible de type rapide) et/ou ▮══╪ (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

SAFETY PRECAUTIONS

NOTICE : Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

The following precautions should be observed :

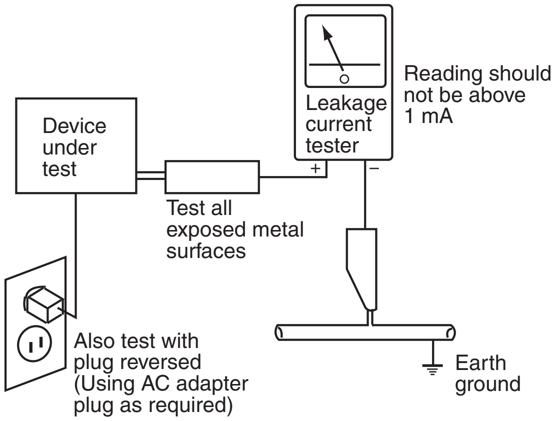
1. When service is required, even though the PDP UNIT an isolation transformer should be inserted between the power line and the set in safety before any service is performed.
2. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacture's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacture has become defective, or inadvertently defeated during servicing. Therefore, the following checks should be performed for the continued protection of the customer and servicetechnician.
6. Perform the following precautions against unwanted radiation and rise in internal temperature.
   - Always return the internal wiring to the original styling.
   - Attach parts (Gascket, Ferrite Core, Ground, Rear Cover, Shield Case etc.) surely after disassembly.
7. Perform the following precautions for the PDP panel.
   - When the front case is removed, make sure nothing hits the panel face, panel corner, and panel edge (so that the glass does not break).
   - Make sure that the panel vent does not break. (Check that the cover is attached.)
   - Handle the FPC connected to the panel carefully. Twisting or pulling the FPC when connecting it to the connector will cause it to peel off from the panel.
8. Pay attention to the following.
   - Pay extreme caution when the front case and rear panel are removed because this may cause a high risk of disturbance to TVs and radios in the surrounding.

Leakage Current Cold Check

With the AC plug removed from an AC power source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 4 MΩ.
The below 4 MΩ resistor value indicate an abnormality which require corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into an AC power source (do not use an isolation transformer for this check).
Turn the AC power switch on.
Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 1 mA.


Device under test
Leakage current tester
+
−
Reading should not be above 1 mA
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire or other hazards.
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SERVICE PRECAUTIONS

1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit. Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.

- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 ºC. Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 ºC in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Do NOT use a soldering iron whose tip temperature cannot be controlled.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:

- Parts numbers of lead-free solder:
  GYP1006 1.0 in dia.
  GYP1007 0.6 in dia.
  GYP1008 0.3 in dia.

1.2 NOTES SPECIFIC TO THIS PRODUCT

- In same cases, there are silicon sheets on back side of POWER SUPPLY Unit, X DRIVE Assy and Y DRIVE Assy due to heat release of these boards to panel chassis. When replacing these boards, check backside of them and if silicon sheets are on there, surely put these silicon sheets again to the original location of them.

1.3 CHARGED SECTION AND HIGH VOLTAGE GENERATING POINT

■ Charged Section

The places where the commercial AC power is used without passing through the power supply transformer.
If the places are touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. Therefore, be sure to connect the set via an insulated transformer and supply the current.

1. Power Cord
2. AC Inlet
3. Power Switch
4. Fuse (In the POWER SUPPLY Unit)
5. STB Transformer and Converter Transformer
   (In the POWER SUPPLY Unit)
6. Other primary side of the POWER SUPPLY Unit

■ High Voltage Generating Point

The places where voltage is 100 V or more except for the charged places described above. If the places are touched, there is a risk of electric shock.
The VSUS voltage remains for several minutes after the power to the unit is turned off. These places must not be touched until about 10 minutes after the power is turned off, or it is confirmed with a tester that there is no residual VSUS voltage.

If the procedures described in "5.6 [1] PANEL DRIVE-POWER ON/OFF FUNCTION" are performed before the power is turned off, the voltage will be discharged in about 30 seconds.

50F X DRIVE Assy	(205 V)
50F Y DRIVE Assy	(–280 V to 420 V)
50F SCAN A Assy	(–280 V to 420 V)
50F SCAN B Assy	(–280 V to 420 V)

▨ : Part is Charged Section.

☐ : Part is the High Voltage Generating Points other than the Charged Section.

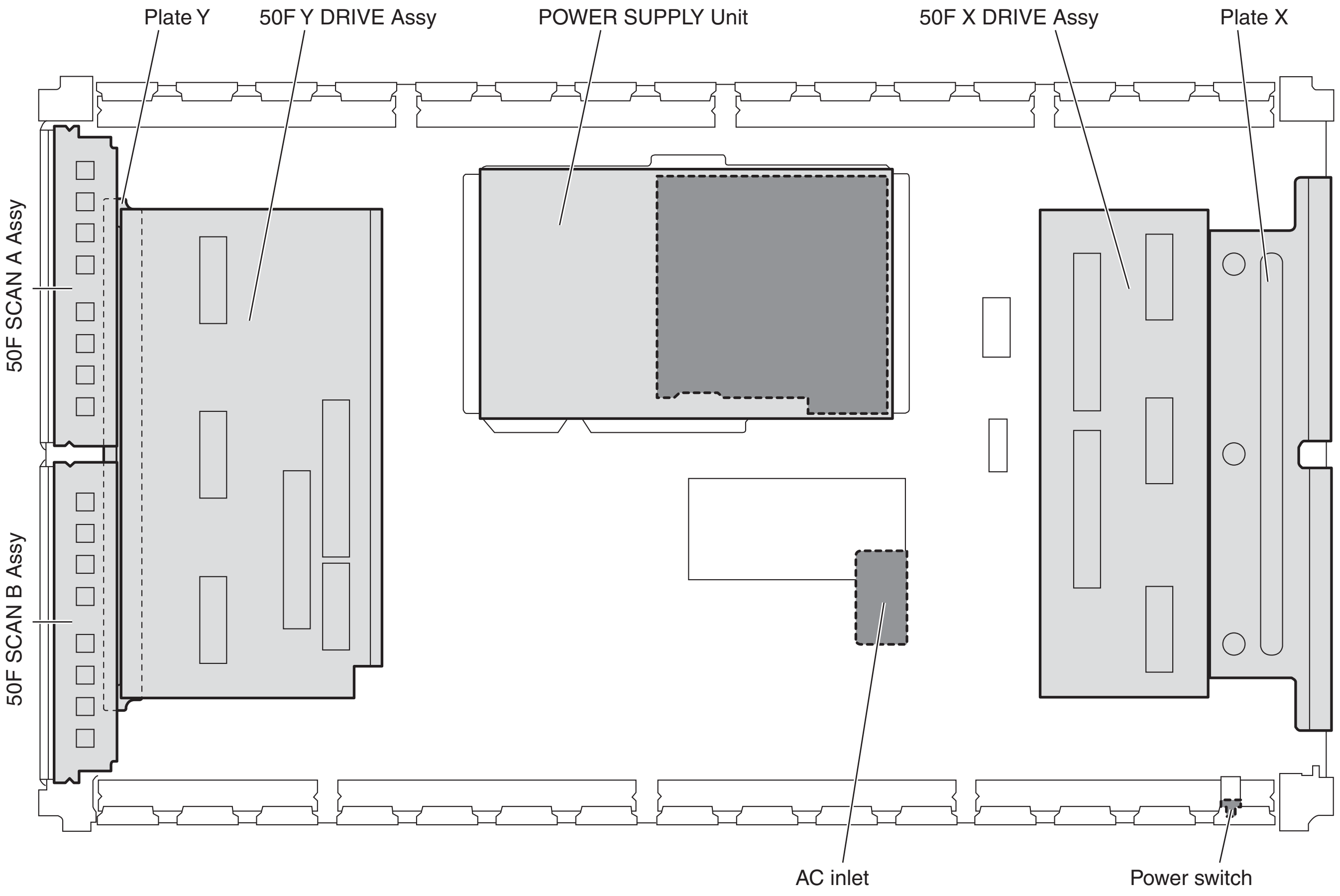


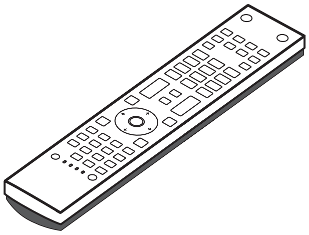
Fig. High Voltage Generating Point (Rear view)

2. SPECIFICATIONS

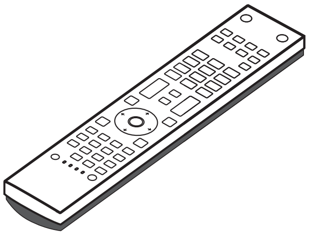
2.1 ACCESSORIES

- Remote control unit

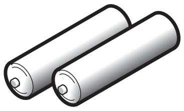
(AXD1568: PDP-LX509A)



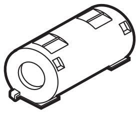
(AXD1574: PDP-C509A)



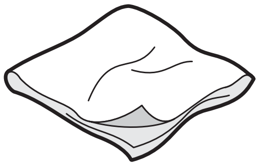
- Dry cell battery (R6, AA) (×2)
  (for remote control unit)



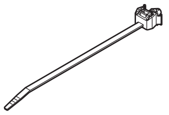
- Ferrite core (black)
  (CTX1089: PDP-LX509A only)



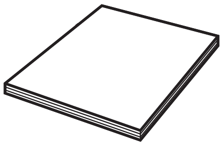
- Cleaning cloth (AED1285)



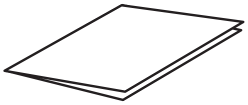
- Binder Assy
  (AEC2158)
  - Cable clamp (×4)



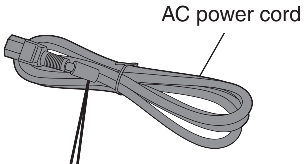
- Operating instructions
  (ARB1580)



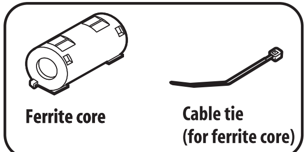
- Warranty card



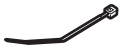
- Power cord


AC power cord

- Ferrite core
  (ATX1039)


Ferrite core
Cable tie
(for ferrite core)

- When only the cable tie is necessary, please order a nylon binder (AEC-093).



2.2 SPECIFICATIONS

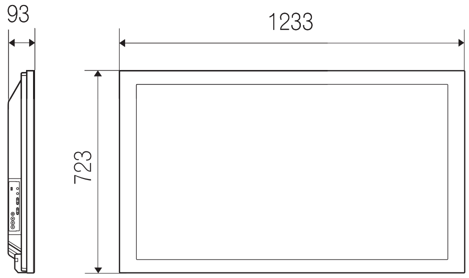
Item			50" flat screen TV, model: PDP-LX509A/PDP-C509A
Number of pixels			1920 x 1080 pixels
Audio amplifier			18 W + 18 W (1 kHz, 10 %, 6 Ω)
Sound Effect			SRS FOCUS/SRS/SRS TruBass/SRS Definition
Power Requirements			240 V AC, 50 Hz, 414 W (0.3 W Standby)
Weight			33.8 kg (74.6 lbs)
Colour System			PAL/SECAM/3.58NTSC/4.43NTSC/PAL60
TV Function (Analogue)	Receiving System		PAL: B
	Tuner	VHF/UHF	AU0 ch to AU69 ch
		CATV	S2 ch to S44 ch
	Auto Channel Preset		99 ch, Auto Preset
	Audio multiplex		A2
TV Function (Digital)	Receiving System		DVB-T (2K/8K COFDM)
	Tuner	VHF/UHF	VHF Band (177.5 MHz to 226.5 MHz) and UHF Band (529.5 MHz to 816.5 MHz)
	Auto Channel Preset		999 ch, Auto Preset, Auto Label
	STEREO		MPEG layer I/II, Dolby Digital
Terminals	Rear	INPUT 1	S-VIDEO in, VIDEO in, AUDIO in
		INPUT 2	COMPONENT VIDEO in, VIDEO in, AUDIO in
		INPUT 4	HDMI in*1, AUDIO in
		INPUT 5	HDMI in*1, AUDIO in
		INPUT 6	HDMI in*1
		CONTROL OUT	1
		SPEAKERS	6 Ω to 16 Ω
		Antenna	75 Ω Din Type for VHF/UHF in
		PC INPUT	Analogue RGB in, AUDIO in
		AUDIO OUT	AUDIO out (Fixed)
		SUB WOOFER OUT	Variable
		DIGITAL OUT	Digital audio output (Optical)
		LAN 10/100	1 (PDP-LX609A/PDP-LX509A only)
	Side	INPUT 3	VIDEO in, AUDIO in
		USB	USB in*2
		PHONES	16 Ω to 32 Ω recommended

*1 This conforms to HDMI 1.3 (Deep Colour) and HDCP1.1. HDMI (High-Definition Multimedia Interface) is a digital interface that handles both video and audio using a single cable. HDCP (High-bandwidth Digital Content Protection) is a technology used to protect copyrighted digital contents that use the Digital Visual Interface (DVI).

*2 This conforms to USB 1.1 and 2.0 specifications.

Design and specifications are subject to change without notice.

Dimensions
Unit: mm

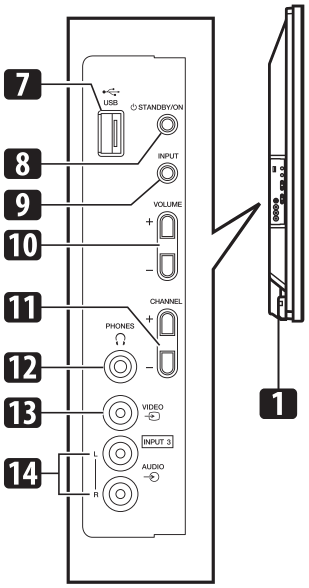


2.3 PANEL FACILITIES

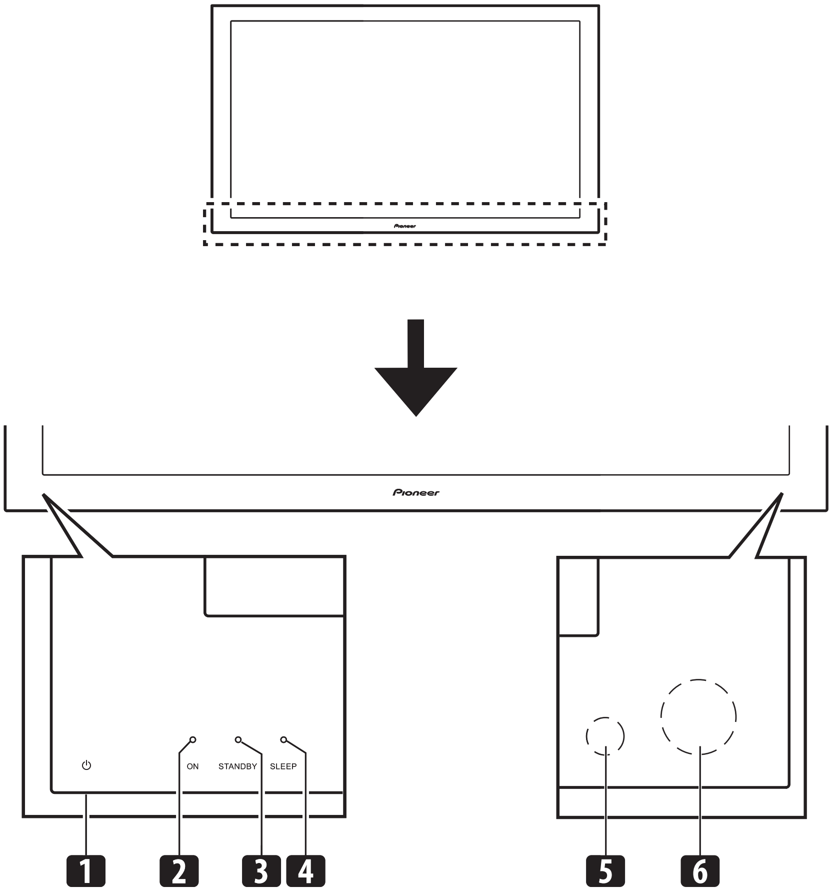
■ Front Section

(Front)

Side


7
USB
STANDBY/ON
8
INPUT
9
VOLUME
+
10
–
CHANNEL
11
PHONES
12
+
–
13
VIDEO
INPUT 3
L
14
AUDIO
R
1

(PDP-LX509A/PDP-C509A)


Pioneer
Pioneer
ON
STANDBY
SLEEP
1
2
3
4
5
6

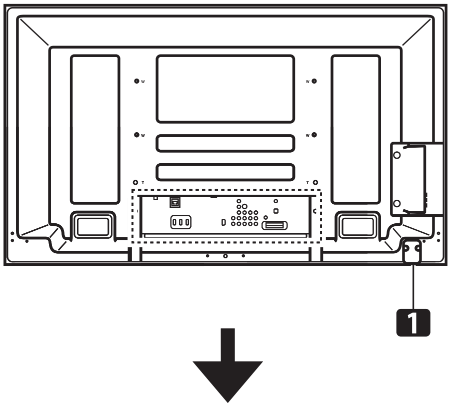
The terminals on the side panel are common to the PDP-LX509A and PDP-C509A.

1 Power On (⏻) button (This button is located at the bottom on the rear panel. If the button is off, the power will not turn on even when **TV ⏻**, **0** to **9** on the remote control unit or **STANDBY/ON** on the flat screen TV is pressed. To turn on the power, press Power On (⏻).)
2 Power ON indicator
3 STANDBY indicator
4 SLEEP indicator
5 Room Light Sensor
6 Remote control sensor
7 USB port (PDP-LX509A, for the Home Media Gallery functions; PDP-C509A, used for service only)
8 **STANDBY/ON** button
9 **INPUT** button
10 **VOLUME +/–** buttons
11 **CHANNEL +/–** buttons
12 PHONES output terminal
13 INPUT 3 terminal (Video)
14 INPUT 3 terminals (Audio)

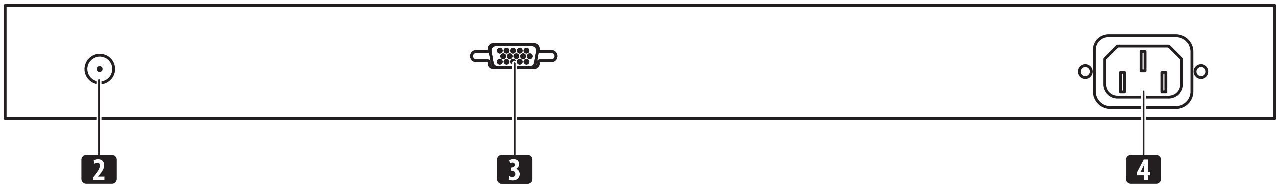
Rear Section

(Rear)

(PDP-LX509A/PDP-C509A)

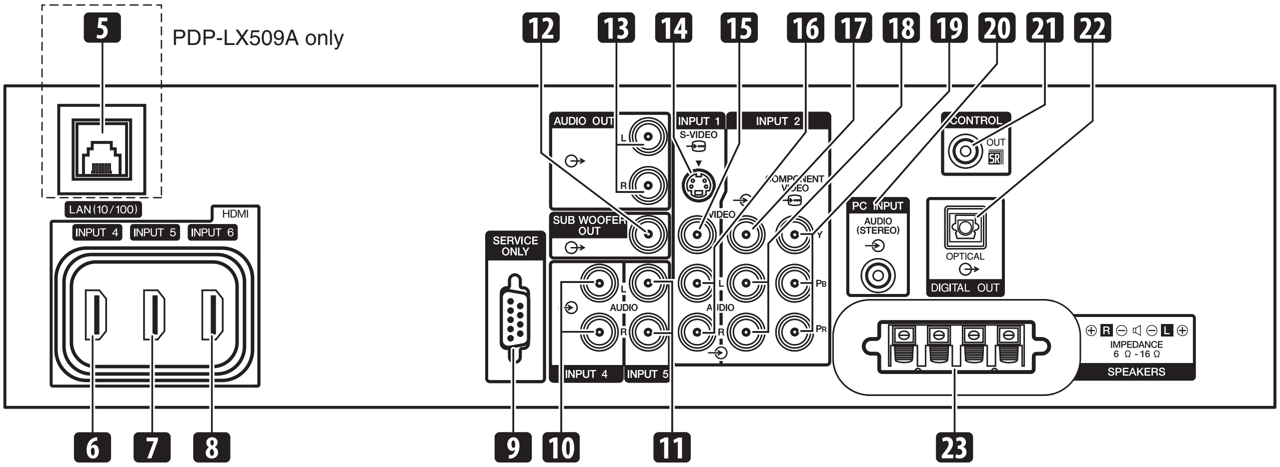


Terminals in upper bank



* For exact terminal positions, refer to the terminal position sheet located near the terminal compartment.

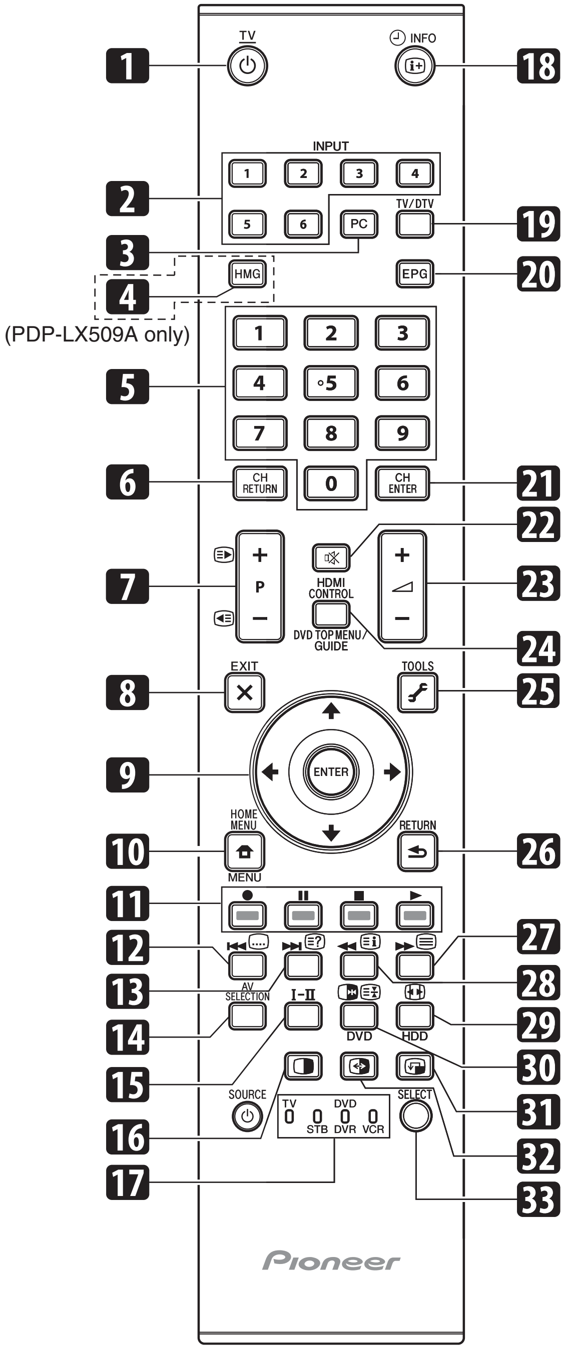
Terminals in middle bank


5
PDP-LX509A only
12
13
14
15
16
17
18
19
20
21
22
LAN (10/100)
HDMI
INPUT 4
INPUT 5
INPUT 6
SERVICE ONLY
AUDIO OUT
L
R
SUB WOOFER OUT
AUDIO
INPUT 4
INPUT 5
INPUT 1
S-VIDEO
VIDEO
INPUT 2
COMPONENT VIDEO
Y
PB
PR
CONTROL
OUT
SR
PC INPUT
AUDIO (STEREO)
OPTICAL
DIGITAL OUT
IMPEDANCE 6 Ω - 16 Ω
SPEAKERS
6
7
8
9
10
11
23

- **1** Power On (⏻) button
- **2** ANT (Antenna) input terminal
- **3** PC INPUT terminal (Analogue RGB)
- **4** AC IN terminal
- **5** LAN (10/100) port (PDP-LX509A only)
- **6** INPUT 4 terminal (HDMI)
- **7** INPUT 5 terminal (HDMI)
- **8** INPUT 6 terminal (HDMI)
- **9** RS-232C terminal (SERVICE ONLY) (used for factory setup)
- **10** INPUT 4 terminals (Audio)
- **11** INPUT 5 terminals (Audio)
- **12** SUB WOOFER OUT terminal
- **13** AUDIO OUT terminals
- **14** INPUT 1 terminal (S-Video)
- **15** INPUT 1 terminal (Video)
- **16** INPUT 1 terminals (Audio)
- **17** INPUT 2 terminal (Video)
- **18** INPUT 2 terminals (Audio)
- **19** INPUT 2 terminals (COMPONENT VIDEO: Y, P_B, P_R)
- **20** PC INPUT terminal (Audio)
- **21** CONTROL OUT terminal
- **22** DIGITAL OUT terminal (OPTICAL)
- **23** SPEAKERS terminals (right/left)
  - Do not connect any devices to the speaker terminals other than the speakers specified.
  - Do not leave speaker cable wires bare and exposed at the terminals. Exposed wires can result in an electrical short causing malfunction or damage to the system.

Remote Control Unit

This section describes the functions of the buttons available when the TV mode has been selected by using the **SELECT** button.



1 TV ⏻: Turns on the power to the flat screen TV or places it into the standby mode.

2 INPUT: Selects an input source of the flat screen TV. (“INPUT 1”, “INPUT 2”, “INPUT 3”, “INPUT 4”, “INPUT 5”, “INPUT 6”)

3 PC: Selects the PC terminal as an input source.

4 HMG (Home Media Gallery, PDP-LX509A only):
Displays the Home Media Gallery screen.

5 0 to 9: TV/External input mode: Selects a channel.
Teletext mode: Selects a page.
Turns the power on when the STANDBY indicator lights red.

6 CH RETURN: Returns to the previous channel.

7 P+/P–: TV/External input mode: Selects a channel.
≡▶/◀≡: Teletext mode: Selects a page.

8 ✕ EXIT: Returns to the normal screen in one step.

9 ↑/↓/←/→: Selects a desired item on the setting screen.
ENTER: Executes a command.

10 ⌂ HOME MENU: Displays the HOME MENU screen.

11 Colour (RED/GREEN/YELLOW/BLUE):
Controls a BD player for HDMI Control functions only.

12 ⊡: Jumps to Teletext subtitle page.
Turns subtitle on and off in DTV input mode depending on the broadcast.

13 ≡?: Displays hidden characters.

14 AV SELECTION: Selects audio and video settings.
(AV source: OPTIMUM, PERFORMANCE, DYNAMIC, MOVIE, SPORT, GAME, Standard. PC source: STANDARD, USER)

15 I–II: Sets the sound multiplex mode.

16 ◧: Switches the screen mode among 2-screen, picture-in-picture, and single-screen.

17 TV, STB, DVD/DVR, VCR: These indicators show the current selection and status when you control other connected equipment, using the supplied remote control unit.

18 ⓘ+ ◷ INFO: Displays the channel information.
Displays the banner information.

19 TV/DTV: Switches the mode between TV and DTV.

20 EPG: Displays the Electronic Programme Guide in DTV input mode.

21 CH ENTER: Executes a channel selection by the number buttons.

22 🔇: Mutes the sound.

23 ◿ +/◿ –: Sets the volume.

24 HDMI CONTROL: Displays the HDMI Control menu.

25 🔧 TOOLS: Displays the TOOLS Menu.

26 ↩ RETURN: Restores the previous menu screen.

27 ≡: Selects the Teletext mode (all TV image, all TEXT image, TV/TEXT image).

28 ≡i: Displays an Index page for the CEEFAX/FLOF format. Displays a TOP Over View page for the TOP format.

29 ⇔: Selects the screen size.

30 ⏯: TV/External input mode: Freezes a frame from a moving image. Press again to cancel the function.
≡⧗ : Teletext mode: Stops updating Teletext pages. Press again to release the hold mode.

31 ⧉: Moves the location of the small screen when in the picture-in-picture mode.

32 ⇆: Switches between the two screens when in the 2-screen or picture-in-picture mode.

33 SELECT: Switches the selection among TV, STB, DVD/DVR, and VCR, so that you can control other connected equipment, using the supplied remote control unit.

Note

- When using the remote control unit, point it at the flat screen TV.

3. BASIC ITEMS FOR SERVICE

3.1 CHECK POINTS AFTER SERVICING

Items to be checked after repair (PDP)

To ensure the quality of the product after repair, check the recommended items shown below:

No.	Procedures	Item to be checked
1	Check if all the symptoms pointed out by the customer have been addressed.	The symptoms in question must not be reproduced.
2	Connect the peripheral equipment.	Connect all external peripheral equipment as originally connected and check if the connections are correct.
3	Check the video and audio.	Tune in to the stations that the customer would normally receive and check if video and audio are normal.
4	Check the buttons and controls.	Use the buttons and controls on the remote control unit and main unit and check if they operate properly.
5	Check the cabinet.	Check for any scratches or dirt that have been made or attached on the cabinet after receiving the product for repair.

See the table below for the items to be checked regarding video and audio:

Item to be checked regarding video	Item to be checked regarding audio
Block noise	Distortion
Horizontal noise	Noise
Dot noise	Volume too low
Disturbed image (video jumpiness)	Volume too high
Too dark	Volume fluctuating
Too bright	Sound interrupted
Mottled color	

Cleaning

Name	Part No.	Remarks
Cleaning paper	GED-008	Used to fan cleaning. Refer to “9.4 CHASSIS SECTION (1/2)”.

3.2 QUICK REFERENCE

Quick Reference upon Service Visit ①
Notes, PD/SD diagnosis, and methods for various settings

Notes when visiting for service

1. Notes when disassembling/reassembling

① Rear case
When reassembling the rear case, the screws must be tightened in a specific order. Be careful not to tighten them in the wrong order forcibly. For details, see "Rear Case" in "7. DISASSEMBLY".

② Attaching screws for the HDMI connector
When attaching the HDMI connector after replacing the Main Assy, secure the HDMI connector manually with a screwdriver, but not with an electric screwdriver. If you tighten the screws too tightly with an electric screwdriver, the screw heads may be damaged, in which case the screws cannot be untightened/tightened any more.

2. On parts replacement

① How to discharge before replacing the Assys
A charge of significant voltage remains in the Plasma Panel even after the power is turned off. Safely discharge the panel before replacement of parts, in either manner indicated below:
A: Let the panel sit at least for 3 minutes after the power is turned off.
B: Turn the Large Signal System off before the power is turned off then, after 1 minute, turn the power off.
For details, see "5.6 [1] PANEL DRIVE-POWER ON/OFF FUNCTION".

② On the settings after replacement of the Assys
Some boards need settings made after replacement of the Assys. For details, see "8. EACH SETTING AND ADJUSTMENT".

3. On various settings

① Setting in Factory mode
After a Mask indication into the panel is performed, be sure to set the Mask setting to "OFF" then exit Factory mode.

PD/SD

Item	No. of LEDs flashing	
	Red	Blue
SQ_LSI		Blue 1
Module device communication		Blue 2
DIGITAL-RST2		Blue 3
Panel temperature		Blue 4
Audio		Blue 5
Module UCOM communication		Blue 6
Main 3-wire serial communication		Blue 7
Main IIC communication		Blue 8
Main UCOM communication		Blue 9
FAN		Blue 10
Unit high temperature		Blue 11
D-TUNER communication		Blue 12
MTB-RST2/RST4		Blue 13
Main EEPROM		Blue 15
POWER	Red 2	
SCAN	Red 3	
SCN-5V	Red 4	
Y-DCDC	Red 6	
Y-SUS	Red 7	
ADRS	Red 8	
X-DCDC	Red 10	
X-SUS	Red 11	
DIG-DCDC	Red 12	
UNKNOWN	Red 15	

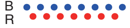
Subcategory confirmation procedure

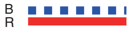
If the DISPLAY key is pressed during shutdown, the orange LED flashes. For indication patterns other than described below, see 5.4 [2].

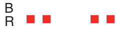
SD		SD Subcategory
2	1	EEPROM
	2	BACKUP
	3	DAC
4	1	PANEL high temperature
	2	PANEL low temperature
8	1	Tuner 1
	2	MSP/MAP
	3	AV Switch
	4	RGB Switch
	5	Main VDEC
	6	VDEC-SDRAM
	7	AD/PLL
	8	HDMI
13	1	RST2
	2	RST4

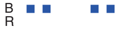
LED Display Information

For indication patterns other than described below, see 5.1 [1].

① Rewriting software


② No backup


③ PD (2-15)


④ SD (1-15)


How to locate several items on the Factory menu

{ } : Item on the Factory menu
[ ] : Key on the remote control unit
" " : Screen indication

1. Confirmation of accumulated power-on time and power-on count

Select {INFORMATION} then {HOUR METER}.
(After entering Factory mode, press [⬇] four times.)

2. Confirmation of the Power-down and Shutdown histories

① Panel system
PD: Select {PANEL FACTORY} then {POWER DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] two times.)
SD: Select {PANEL FACTORY} then {SHUT DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] three times.)

② MTB section
Select {INFORMATION} then {MAIN NG}.
(After entering Factory mode, press [⬇] two times.)

3. How to display the Mask indication

① Mask indication in the panel side
1. Select {PANEL FACTORY} then {RASTER MASK SETUP}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] 8 times.)
2. Press [ENTER/SET], then select a Mask indication, using [⬆] or [⬇].

Adjustments and Settings after replacement of the Assys (Procedures in Factory mode)

1. Digital Video Assy: Transfer of backup data

① Select {PANEL FACTORY}, {ETC}, then {BACKUP DATA}. (After entering Factory mode, press [MUTING] once, press [ENTER/SET], press [⬇] seven times, then press [ENTER/SET].)
② Select {TRANSFER}, using [➡], then hold [ENTER/SET] pressed for at least 5 seconds.
③ After transfer of backup data is completed, {ETC} is automatically selected, and the LED on the front panel returns to normal lighting.

2. MAIN Assy: Execution of FINAL SETUP.

① Select {INITIALIZE} then {FINAL SETUP}, then press [ENTER/SET]. (After entering Factory mode, press [MUTING] three times, then press [⬇] four times.)
② Select "YES", using [➡]. Then hold [ENTER/SET] pressed for at least 5 seconds.
③ After "FINAL SETUP IS COMPLETE" is displayed on the screen, turn the POWER switch of the main unit off.

3. POWER SUPPLY Unit: Clearance of the accumulated power-on count and maximum temperature value

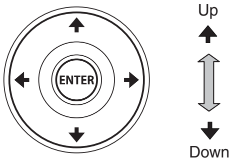
① Select {PANEL FACTORY}, {ETC}, then {P COUNT INFO}. (After entering Factory mode, press [MUTING] once, press [ENTER/SET], press [⬇] seven times, press [ENTER/SET], then press [⬇] six times.)
② Press [➡] to select "CLEAR". Hold [ENTER/SET] pressed for at least 5 seconds. After clearance is completed, "ETC" is automatically selected. Clear the maximum temperature value (MAX TEMP) in the same manner.

4. Other Assys: Clearance of the maximum temperature value

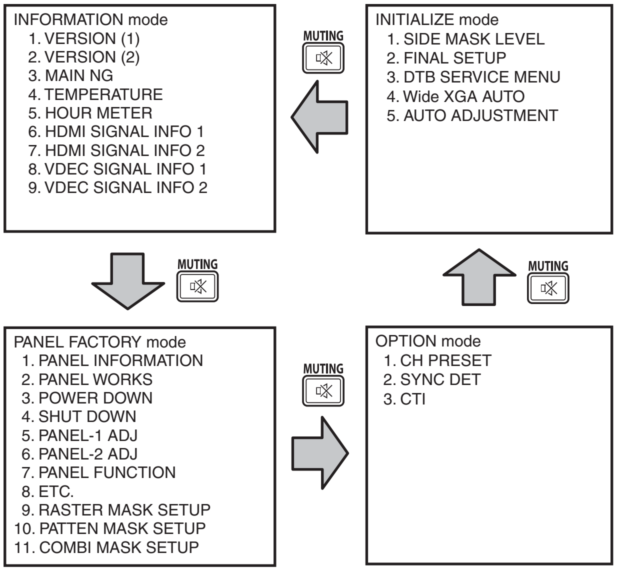
① Select {PANEL FACTORY}, {ETC}, then {MAX TEMP}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, press [ENTER/SET], then press [⬇] seven times.)
② Press [➡] to select "CLEAR". Hold [ENTER/SET] pressed for at least 5 seconds. After clearance is completed, "ETC" is automatically selected.

Quick Reference upon Service Visit ②
Mode transition and structure of layers in Service Factory mode

Mode transition in Service Factory mode



- To shift to another mode, press [MUTING].
- To shift to another item in a specific mode, press [🡅] or [🡇].
- To shift to the next nested layer below for an item with a "(+)" indication, press [ENTER/SET]. To return to the next nested layer above, also press [ENTER/SET].



INFORMATION mode
1. VERSION (1)
2. VERSION (2)
3. MAIN NG
4. TEMPERATURE
5. HOUR METER
6. HDMI SIGNAL INFO 1
7. HDMI SIGNAL INFO 2
8. VDEC SIGNAL INFO 1
9. VDEC SIGNAL INFO 2

PANEL FACTORY mode
1. PANEL INFORMATION
2. PANEL WORKS
3. POWER DOWN
4. SHUT DOWN
5. PANEL-1 ADJ
6. PANEL-2 ADJ
7. PANEL FUNCTION
8. ETC.
9. RASTER MASK SETUP
10. PATTEN MASK SETUP
11. COMBI MASK SETUP

OPTION mode
1. CH PRESET
2. SYNC DET
3. CTI

INITIALIZE mode
1. SIDE MASK LEVEL
2. FINAL SETUP
3. DTB SERVICE MENU
4. Wide XGA AUTO
5. AUTO ADJUSTMENT

Structure of Layers in Service Factory Mode

INFORMATION mode	
├ 1. VERSION (1)	The software versions for each microcomputer
├ 2. VERSION (2)	The Flash memory versions for each device
├ 3. MAIN NG	The shutdown message ID/event times (Going Clear mode by [ENTER/SET] key)
│ └ 3-1. CLEAR	Select Yes by [➡] key ➡ pushing and hold [ENTER/SET] key
├ 4. TEMPERATURE	The temperature/FAN rotating status/Room Light Sensor
├ 5. HOUR METER	The HOUR METER/P-COUNT information
├ 6. HDMI SIGNAL INFO 1	The information of HDMI information files
├ 7. HDMI SIGNAL INFO 2	The information of HDMI information files
├ 8. VDEC SIGNAL INFO 1	The signal information of VDEC
├ 9. VDEC SIGNAL INFO 2	The signal information of VDEC
PANEL FACTORY mode	Refer to [PANEL FACTORY MODE]
OPTION mode	
├ 1. CH PRESET	For production line use
├ 2. SYNC DET	For technical analysis
├ 3. CTI	For technical analysis
INITIALIZE mode	
├ 1. SIDE MASK LEVEL	For factory use
│ └ 1-1. SIDE MASK LEVEL	
├ 2. FINAL SETUP	Set to Factory default settings (it should perform after replacing a MAIN Assy)
│ └ 2-1. DATA RESET	
├ 3. DTB SERVICE MODE	Information for the Digital Tuner Service Menu is displayed
│ └ 3-1. MODE SHIFT	
├ 4. Wide XGA AUTO	For technical analysis
└ 5. AUTO ADJUSTMENT	

Structure of Layers in Panel Factory Mode 1

1. PANEL INFORMATION	Version indication of the panel
2. PANEL WORKS	Indications of the accumulated power-on time and power-on count of the panel
3. POWER DOWN	Indication of the Power-down history
4. SHUT DOWN	Indication of the Shutdown history
5. PANEL-1 ADJ (+)	
1. VOL SUS	Settings required after replacement of the panel
2. VOL OFFSET	
• • • • •	
10. RESET1ST_KSB	Items for factory use
• • • • •	
25. SUS FREQ	For AM noise prevention (Depending on the mode, brightness of the screen changes.) For confirmation of the result of the setting change, the unit must be turned off then back on again.
6. PANEL-2 ADJ (+)	
1. R-HIGH	For the WB adjustment of the panel and ABL adjustment. A setting table is available for each signal frequency.
2. G-HIGH	
• • • • •	
6. B-LOW	
7. ABL	
7. PANEL FUNCTION (+)	
1. R-LEVEL	Items for factory use
• • • • •	

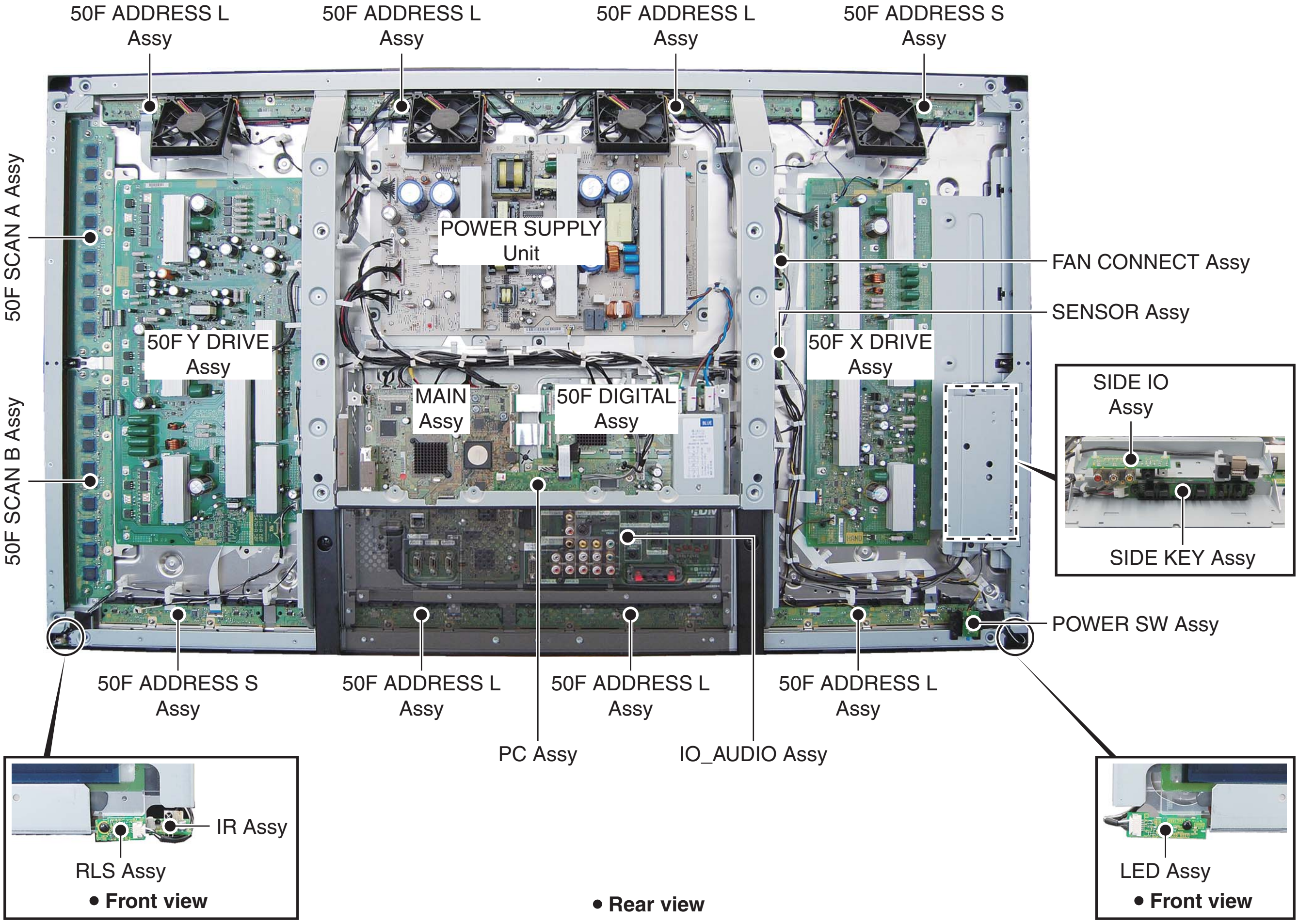
To "Structure of Layers in Panel Factory Mode 2"

Structure of Layers in Panel Factory Mode 2

8. ETC (+)	
1. BACKUP DATA	For transferring backup data (after replacement of the DIGITAL Assy)
2. DIGITAL EEPROM	Change the adjustment status of the DIGITAL Assy.
3. PD INFO.	For clearance of data for the corresponding items. The clearing method is the same: Select "CLEAR", then hold [ENTER/SET] pressed for at least 5 seconds.
4. SD INFO.	
5. HR-MTR INFO.	
6. PM/B1-B5	
7. P COUNT INFO.	
8. MAX TEMP.	
9. MIRROR	Switch the Mirror display mode.
10. CLS	Switch the function when checking the color sensor level.
9. RASTER MASK SETUP (+)	
1. MASK OFF	For use while the Raster Mask is displayed. Use [🡅] or [🡇] to select the type of mask. Use [➡] or [⬅] to select the sequence.
2. RST MASK 01	
• • • • •	
10. PATTERN MASK SETUP (+)	
1. MASK OFF	For use while the Pattern Mask is displayed. Use [🡅] or [🡇] to select the type of mask. Use [➡] or [⬅] to select the sequence.
2. PTN MASK 01	
• • • • •	
11. COMBI MASK SETUP (+)	
1. MASK OFF	For use while the Combination Mask is displayed. Use [🡅] or [🡇] to select the type of mask. Use [➡] or [⬅] to select the sequence.
2. CMB MASK 01	
• • • • •	

3.3 PCB LOCATIONS

Note: The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype. Upon servicing, be sure to restore the original wiring of the unit after repair work.


50F ADDRESS L Assy
50F ADDRESS L Assy
50F ADDRESS L Assy
50F ADDRESS S Assy
50F SCAN A Assy
50F SCAN B Assy
POWER SUPPLY Unit
FAN CONNECT Assy
SENSOR Assy
50F Y DRIVE Assy
50F X DRIVE Assy
MAIN Assy
50F DIGITAL Assy
SIDE IO Assy
SIDE KEY Assy
POWER SW Assy
50F ADDRESS S Assy
50F ADDRESS L Assy
50F ADDRESS L Assy
50F ADDRESS L Assy
PC Assy
IO_AUDIO Assy
IR Assy
RLS Assy
• Front view
• Rear view
LED Assy
• Front view

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

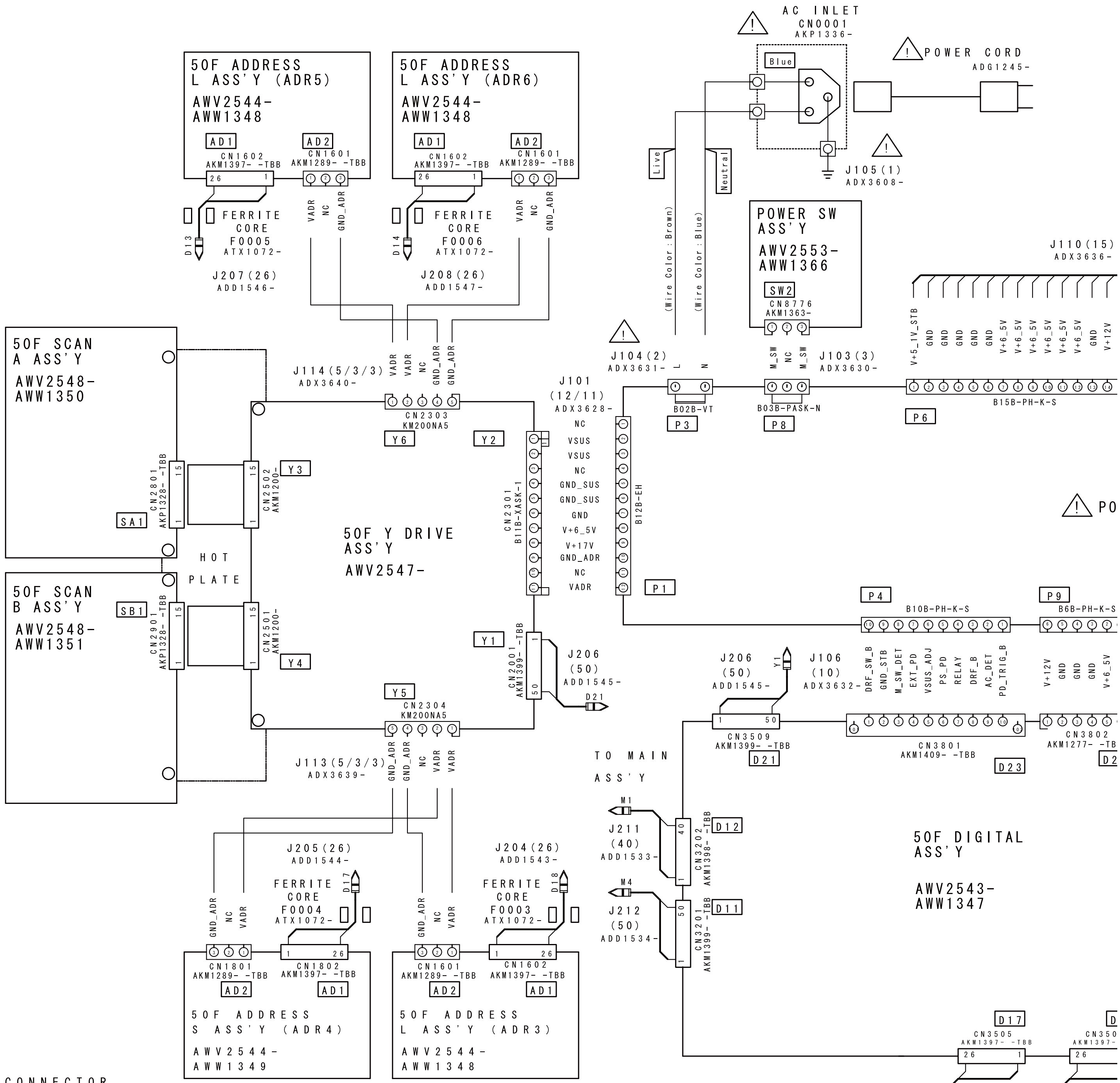
LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP		50F ADDRESS L ASSY	AWW1348
NSP		50F ADDRESS S ASSY	AWW1349
NSP		50F SCAN A ASSY	AWW1350
		└ IC2801 - IC2808	AN16184A
NSP		50F SCAN B ASSY	AWW1351
		└ IC2901 - IC2908	AN16184A
		SENSOR ASSY	AWW1340
		50F DIGITAL Assy	AWW1347
		50F X DRIVE ASSY	AWV2546
		50F Y DRIVE ASSY	AWV2547

Mark	No.	Description	Part No.
⚠		MAIN ASSY (for PDP-LX509A)	AWV2557
⚠		MAIN ASSY (for PDP-C509A)	AWV2588
		IO_AUDIO ASSY	AWW1355
		SIDE IO ASSY	AWW1356
		PC ASSY	AWW1359
		SIDE KEY ASSY	AWW1361
		LED ASSY	AWW1362
		IR ASSY	AWW1363
		FAN CONNECT ASSY	AWW1364
		RLS ASSY	AWW1365
		POWER SW ASSY	AWW1366
⚠		POWER SUPPLY UNIT	AXY1200
		PDP SERVICE ASSY 509FE	AWU1342

4. BLOCK DIAGRAM

4.1 OVERALL WIRING DIAGRAM (1/2)


A
B
C
D
E
AC INLET
CN0001
AKP1336-
Blue
POWER CORD
ADG1245-
J105(1)
ADX3608-
Live
Neutral
(Wire Color:Brown)
(Wire Color:Blue)
50F ADDRESS
L ASS'Y (ADR5)
AWV2544-
AWW1348
AD1
AD2
CN1602
AKM1397- -TBB
CN1601
AKM1289- -TBB
FERRITE
CORE
F0005
ATX1072-
D13
VADR
NC
GND_ADR
J207(26)
ADD1546-
50F ADDRESS
L ASS'Y (ADR6)
AWV2544-
AWW1348
FERRITE
CORE
F0006
ATX1072-
D14
J208(26)
ADD1547-
POWER SW
ASS'Y
AWV2553-
AWW1366
SW2
CN8776
AKM1363-
J110(15)
ADX3636-
50F SCAN
A ASS'Y
AWV2548-
AWW1350
J114(5/3/3)
ADX3640-
VADR
VADR
NC
GND_ADR
GND_ADR
CN2303
KM200NA5
Y6
Y2
Y3
CN2801
AKP1328- -TBB
CN2502
AKM1200-
SA1
J104(2)
ADX3631-
L
N
B02B-VT
P3
M_SW
NC
M_SW
J103(3)
ADX3630-
B03B-PASK-N
P8
V+5_1V_STB
GND
GND
GND
GND
GND
V+6_5V
V+6_5V
V+6_5V
V+6_5V
V+6_5V
GND
V+12V
B15B-PH-K-S
P6
J101
(12/11)
ADX3628-
NC
VSUS
VSUS
NC
GND_SUS
GND_SUS
GND
V+6_5V
V+17V
GND_ADR
NC
VADR
CN2301
B11B-XASK-1
B12B-EH
P1
PO
HOT
PLATE
50F Y DRIVE
ASS'Y
AWV2547-
50F SCAN
B ASS'Y
AWV2548-
AWW1351
SB1
CN2901
AKP1328- -TBB
CN2501
AKM1200-
Y4
Y1
CN2001
AKM1399- -TBB
J206
(50)
ADD1545-
D21
Y5
CN2304
KM200NA5
J113(5/3/3)
ADX3639-
GND_ADR
GND_ADR
NC
VADR
VADR
P4
B10B-PH-K-S
P9
B6B-PH-K-S
J206
(50)
ADD1545-
Y1
J106
(10)
ADX3632-
DRF_SW_B
GND_STB
M_SW_DET
EXT_PD
VSUS_ADJ
PS_PD
RELAY
DRF_B
AC_DET
PD_TRIG_B
V+12V
GND
GND
GND
V+6_5V
CN3509
AKM1399- -TBB
D21
CN3801
AKM1409- -TBB
D23
CN3802
AKM1277- -TB
TO MAIN
ASS'Y
M1
J211
(40)
ADD1533-
CN3202
AKM1398- -TBB
D12
M4
J212
(50)
ADD1534-
CN3201
AKM1399- -TBB
D11
50F DIGITAL
ASS'Y
AWV2543-
AWW1347
J205(26)
ADD1544-
FERRITE
CORE
F0004
ATX1072-
D17
J204(26)
ADD1543-
FERRITE
CORE
F0003
ATX1072-
D18
GND_ADR
NC
VADR
CN1801
AKM1289- -TBB
CN1802
AKM1397- -TBB
AD2
AD1
50F ADDRESS
S ASS'Y (ADR4)
AWV2544-
AWW1349
CN1601
AKM1289- -TBB
CN1602
AKM1397- -TBB
50F ADDRESS
L ASS'Y (ADR3)
AWV2544-
AWW1348
D17
CN3505
AKM1397- -TBB
CN350
AKM1397-
AD1(ADR4)
J205
(26)
ADD1544-
AD1(ADR3)
J204
(26)
ADD1543

CONNECTOR
PIN ASSIGN

CN3501 D13 → CN1602 AD1
CN3502 D14 → CN1602 AD1
CN3503 D15 → CN1602 AD1
CN3504 D16 → CN1802 AD1
CN3505 D17 → CN1802 AD1
CN3506 D18 → CN1602 AD1
CN3507 D19 → CN1602 AD1
CN3508 D20 → CN1602 AD1

1→26. V+10V
2→25. V+10V
3→24. GND
4→23. GND
5→22. AN
6→21. AP
7→20. GND
8→19. BN
9→18. BP
10→17. GND
11→16. CN
12→15. CP
13→14. GND
14→13. CLKN
15→12. CLKP
16→11. GND
17→10. DN
18→ 9. DP
19→ 8. GND
20→ 7. GND
21→ 6. V+3_3V
22→ 5. V+3_3V
23→ 4. V+3_3V
24→ 3. GND
25→ 2. LS1
26→ 1. ADR_PD

CN2501 Y4
↓
CN2901 SB1

1. VH
2. VH
3. NC
4. NC
5. GNDH_VH
6. GNDH_VH
7. SI
8. GNDH_DIG
9. CLK_L
10. LE
11. OC1
12. OC2
13. CLR
14. GNDH_RL
15. IC5V

CN2502 Y3
↓
CN2801 SA1

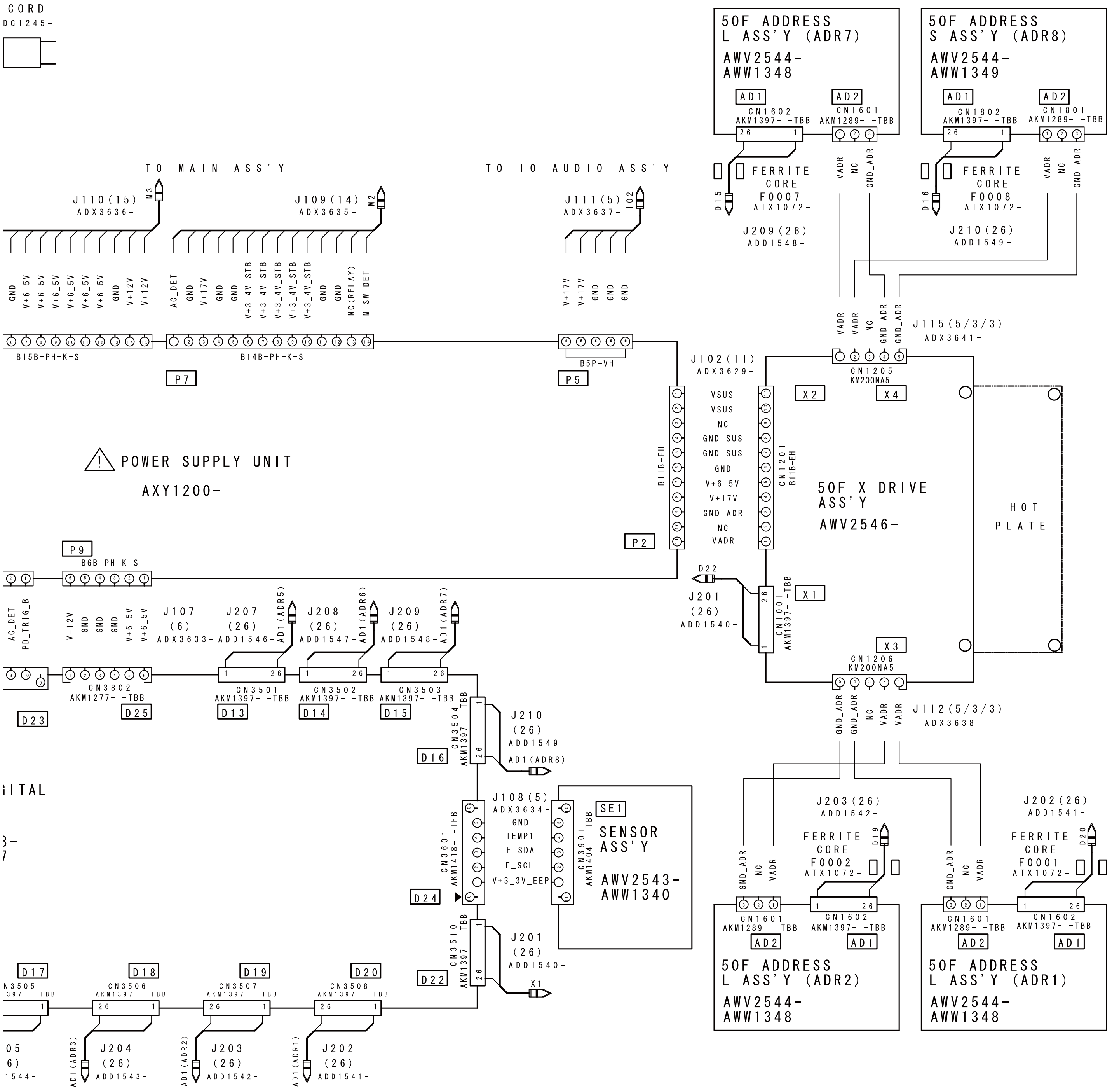
1. VH
2. VH
3. NC
4. NC
5. GNDH_VH
6. GNDH_VH
7. CLK_H
8. GNDH_DIG
9. LE
10. OC1
11. OC2
12. CLR
13. SI
14. GNDH_RH
15. IC5V

CN3509 D21 → CN2001 Y1

1→50. YCN_PD
2→49. VYPRST_ADJ
3→48. SCAN_PD
4→47. GND
5→46. YDD_PD
6→45. VOFS_ADJ
7→44. YSUS_PD
8→43. GND
9→42. YRSV1
10→41. YRSV2
11→40. GND
12→39. YKNOFS4
13→38. YKNOFS3
14→37. YKNOFS2
15→36. YKNOFS1
16→35. GND
17→34. YSOFT-G
18→33. SUS_MUTE
19→32. YSNOFS
20→31. GND
21→30. YRST-D
22→29. YSUS_LMSK
23→28. YSUS_HMSK
24→27. GND
25→26. YSUS_D
26→25. YPR-U
27→24. YSUS_G
28→23. GND
29→22. YSUS_U
30→21. YRSV3
31→20. YSUS_B
32→19. ESW
33→18. GND
34→17. CLK_L
35→16. YRSV4
36→15. SI
37→14. CLK_H
38→13. GND
39→12. LE
40→11. OC1
41→10. OC2
42→ 9. CLR
43→ 8. GND
44→ 7. VKNOFS4_ADJ
45→ 6. VKNOFS3_ADJ
46→ 5. VKNOFS1_2_ADJ
47→ 4. GND
48→ 3. SCN5V_PD
49→ 2. YDRV_PD(GND)
50→ 1. PSW2

CN3201 D11 → CN4101 M4

1→50. V+3_4V_ACT2
2→49. NC
3→48. GND
4→47. MULTI_OE
5→46. RELAY2
6→45. REQ_MD
7→44. RXD_MD
8→43. TXD_MD
9→42. GND
10→41. THEATER
11→40. VD
12→39. HD
13→38. DE
14→37. GND
15→36. CLK
16→35. GND
17→34. R9_EVN
18→33. R8_EVN
19→32. R7_EVN
20→31. R6_EVN
21→30. R5_EVN
22→29. R4_EVN
23→28. R3_EVN
24→27. R2_EVN
25→26. R1_EVN
26→25. R0_EVN
27→24. GND
28→23. G9_EVN
29→22. G8_EVN
30→21. G7_EVN
31→20. G6_EVN
32→19. G5_EVN
33→18. G4_EVN
34→17. G3_EVN
35→16. G2_E
36→15. G1_E
37→14. G0_E
38→13. GND
39→12. B9_E
40→11. B8_E
41→10. B7_E
42→ 9. B6_E
43→ 8. B5_E
44→ 7. B4_E
45→ 6. B3_E
46→ 5. B2_E
47→ 4. B1_E
48→ 3. B0_E
49→ 2. GND
50→ 1. MODE


CORD
DG1245-
TO MAIN ASS'Y
TO IO_AUDIO ASS'Y
J110(15)
ADX3636-
M3
J109(14)
ADX3635-
M2
J111(5)
ADX3637-
IO2
GND
V+6_5V
V+6_5V
V+6_5V
V+6_5V
V+6_5V
V+6_5V
GND
V+12V
V+12V
AC_DET
GND
V+17V
GND
GND
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
GND
GND
NC(RELAY)
M_SW_DET
V+17V
V+17V
GND
GND
GND
B15B-PH-K-S
B14B-PH-K-S
B5P-VH
P7
P5
POWER SUPPLY UNIT
AXY1200-
P9
B6B-PH-K-S
P2
B11B-EH
AC_DET
PD_TRIG_B
V+12V
GND
GND
GND
V+6_5V
V+6_5V
J107
(6)
ADX3633-
J207
(26)
ADD1546-
AD1(ADR5)
J208
(26)
ADD1547-
AD1(ADR6)
J209
(26)
ADD1548-
AD1(ADR7)
CN3802
AKM1277- -TBB
CN3501
AKM1397- -TBB
CN3502
AKM1397- -TBB
CN3503
AKM1397- -TBB
D23
D25
D13
D14
D15
CN3504
AKM1397- -TBB
J210
(26)
ADD1549-
AD1(ADR8)
D16
ITAL
J108(5)
ADX3634-
GND
TEMP1
E_SDA
E_SCL
V+3_3V_EEP
CN3601
AKM1418- -TFB
CN3901
AKM1404- -TBB
SE1
SENSOR ASS'Y
AWV2543-
AWW1340
D24
CN3510
AKM1397- -TBB
J201
(26)
ADD1540-
X1
D22
D17
D18
D19
D20
CN3505
CN3506
AKM1397- -TBB
CN3507
AKM1397- -TBB
CN3508
AKM1397- -TBB
AD1(ADR3)
J204
(26)
ADD1543-
AD1(ADR2)
J203
(26)
ADD1542-
AD1(ADR1)
J202
(26)
ADD1541-
05
6)
1544-
50F ADDRESS
L ASS'Y (ADR7)
AWV2544-
AWW1348
AD1
AD2
CN1602
AKM1397- -TBB
CN1601
AKM1289- -TBB
50F ADDRESS
S ASS'Y (ADR8)
AWV2544-
AWW1349
CN1802
AKM1397- -TBB
CN1801
AKM1289- -TBB
FERRITE
CORE
F0007
ATX1072-
D15
FERRITE
CORE
F0008
ATX1072-
D16
VADR
NC
GND_ADR
J209(26)
ADD1548-
J210(26)
ADD1549-
J115(5/3/3)
ADX3641-
VADR
VADR
NC
GND_ADR
GND_ADR
CN1205
KM200NA5
J102(11)
ADX3629-
VSUS
VSUS
NC
GND_SUS
GND_SUS
GND
V+6_5V
V+17V
GND_ADR
NC
VADR
CN1201
B11B-EH
X2
X4
50F X DRIVE
ASS'Y
AWV2546-
HOT
PLATE
D22
J201
(26)
ADD1540-
CN1001
AKM1397- -TBB
X1
X3
CN1206
KM200NA5
GND_ADR
GND_ADR
NC
VADR
VADR
J112(5/3/3)
ADX3638-
J203(26)
ADD1542-
J202(26)
ADD1541-
FERRITE
CORE
F0001
ATX1072-
D19
FERRITE
CORE
F0001
ATX1072-
D20
GND_ADR
NC
VADR
CN1601
AKM1289- -TBB
CN1602
AKM1397- -TBB
AD2
AD1
50F ADDRESS
L ASS'Y (ADR2)
AWV2544-
AWW1348
50F ADDRESS
L ASS'Y (ADR1)
AWV2544-
AWW1348
A
B
C
D
E

- When ordering service parts, be sure to refer to “EXPLODED VIEWS and PARTS LIST” or “PCB PARTS LIST”.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

M4

3.R8_EVN
2.R7_EVN
1.R6_EVN
0.R5_EVN
9.R4_EVN
8.R3_EVN
7.R2_EVN
6.R1_EVN
5.R0_EVN
4.GND
3.G9_EVN
2.G8_EVN
1.G7_EVN
0.G6_EVN
9.G5_EVN
8.G4_EVN
7.G3_EVN
35→16.G2_EVN
36→15.G1_EVN
37→14.G0_EVN
38→13.GND
39→12.B9_EVN
40→11.B8_EVN
41→10.B7_EVN
42→ 9.B6_EVN
43→ 8.B5_EVN
44→ 7.B4_EVN
45→ 6.B3_EVN
46→ 5.B2_EVN
47→ 4.B1_EVN
48→ 3.B0_EVN
49→ 2.GND
50→ 1.MODE_A

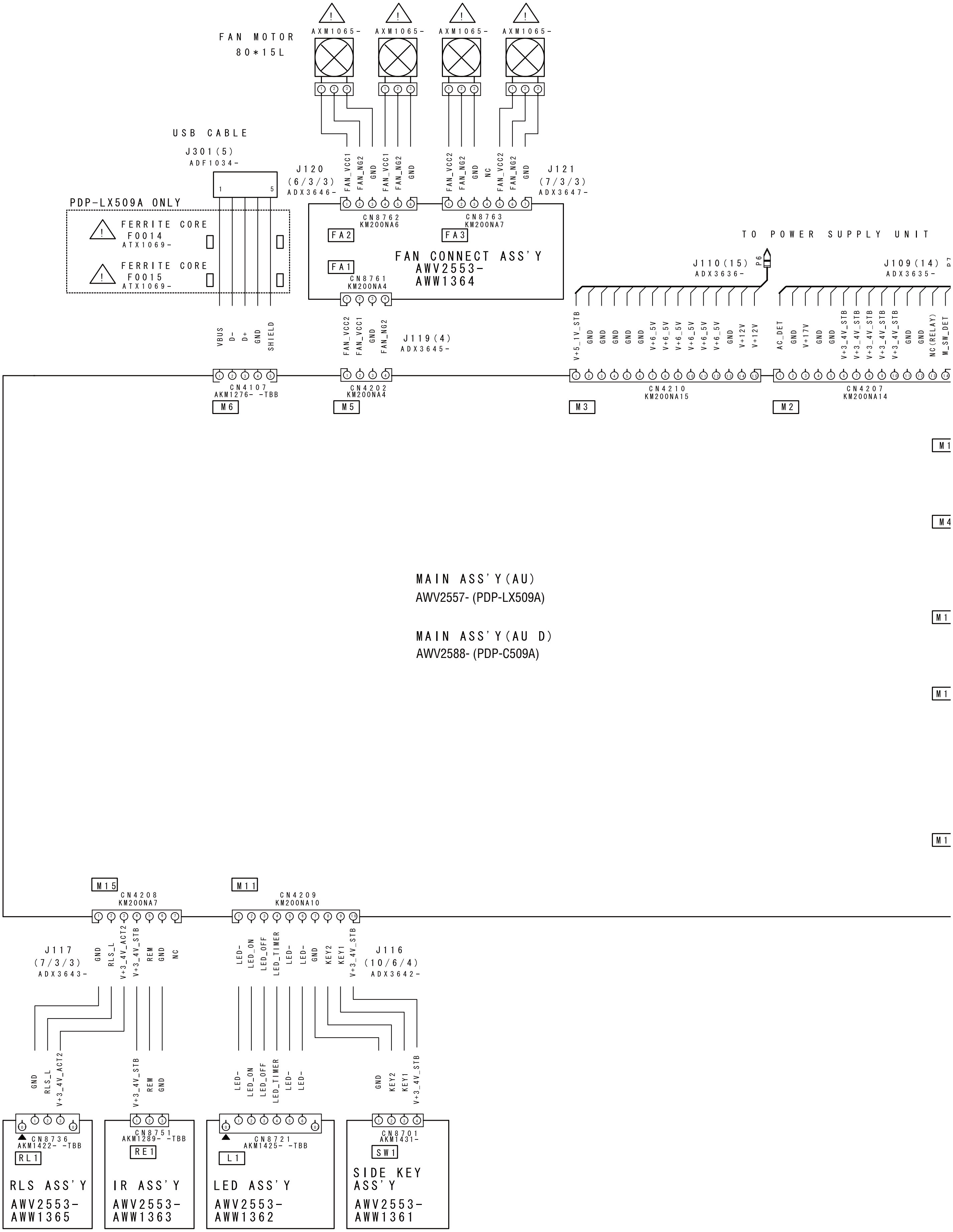
CN3202 D12 → CN4105 M1

1→40.MODE_B
2→39.SQ_SEL
3→38.GND
4→37.GND
5→36.R9_ODD
6→35.R8_ODD
7→34.R7_ODD
8→33.R6_ODD
9→32.R5_ODD
10→31.R4_ODD
11→30.R3_ODD
12→29.R2_ODD
13→28.R1_ODD
14→27.R0_ODD
15→26.GND
16→25.G9_ODD
17→24.G8_ODD
18→23.G7_ODD
19→22.G6_ODD
20→21.G5_ODD
21→20.G4_ODD
22→19.G3_ODD
23→18.G2_ODD
24→17.G1_ODD
25→16.G0_ODD
26→15.GND
27→14.B9_ODD
28→13.B8_ODD
29→12.B7_ODD
30→11.B6_ODD
31→10.B5_ODD
32→ 9.B4_ODD
33→ 8.B3_ODD
34→ 7.B2_ODD
35→ 6.B1_ODD
36→ 5.B0_ODD
37→ 4.GND
38→ 3.GND
39→ 2.GND
40→ 1.MODE_C

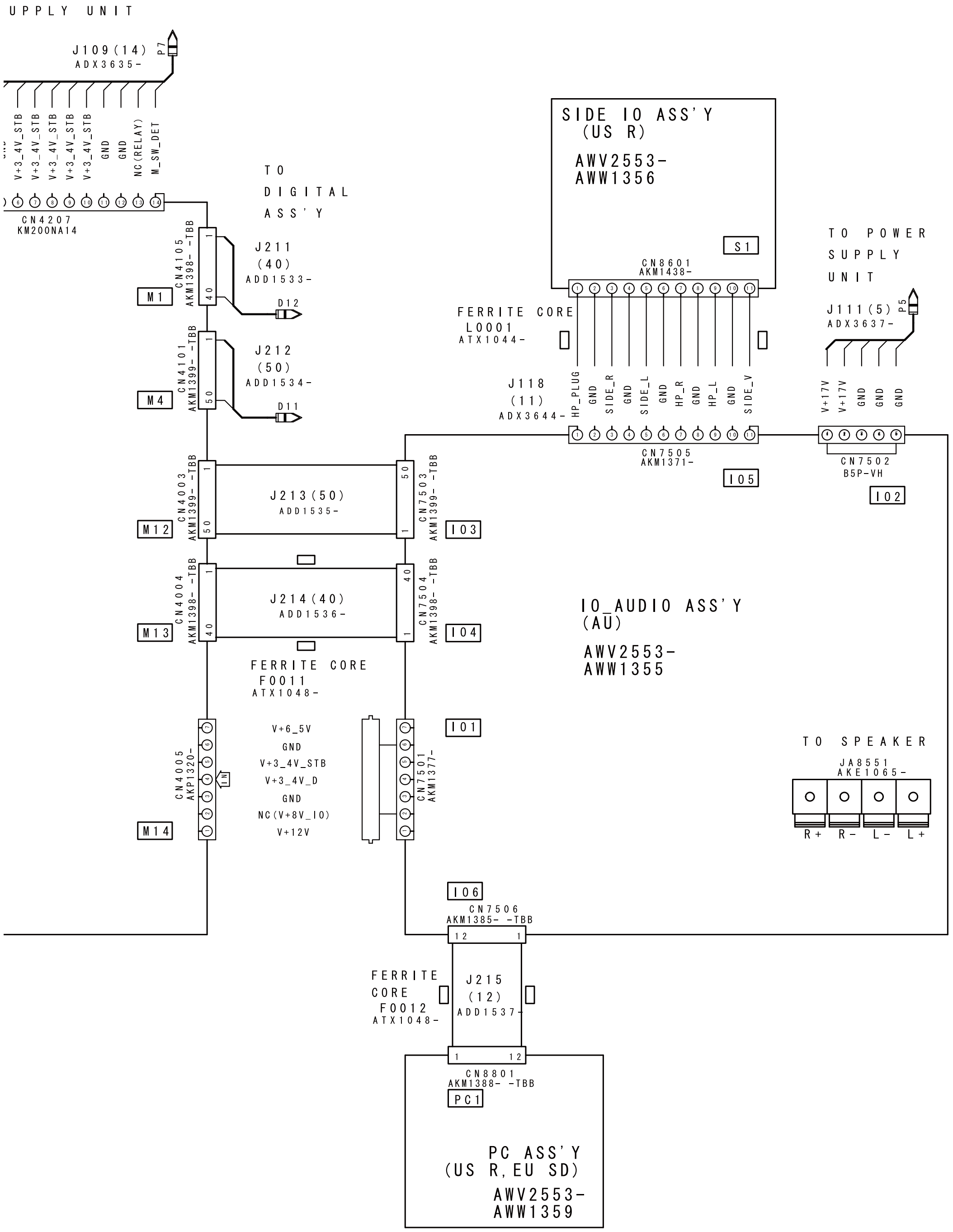
CN3510 D22 → CN1001 X1

1→26.XSUS_B
2→25.GND
3→24.XSUS_U
4→23.GND
5→22.XSUS_D
6→21.GND
7→20.XSUS_G
8→19.GND
9→18.XPRST
10→17.GND
11→16.XKOFS1
12→15.GND
13→14.XKOFS2
14→13.GND
15→12.XSOFT_D
16→11.GND
17→10.SUS_MUTE
18→ 9.GND
19→ 8.XKOFS1_ADJ
20→ 7.XKOFS2_ADJ
21→ 6.GND
22→ 5.XDD_PD
23→ 4.PSW2
24→ 3.XRSV1
25→ 2.Psize
26→ 1.XSUS_PD

4.2 OVERALL WIRING DIAGRAM (2/2)



FAN MOTOR
80*15L
AXM1065-
AXM1065-
AXM1065-
AXM1065-
USB CABLE
J301(5)
ADF1034-
PDP-LX509A ONLY
FERRITE CORE
F0014
ATX1069-
FERRITE CORE
F0015
ATX1069-
J120
(6/3/3)
ADX3646-
FAN_VCC1
FAN_NG2
GND
FAN_VCC1
FAN_NG2
GND
FAN_VCC2
FAN_NG2
GND
NC
FAN_VCC2
FAN_NG2
GND
J121
(7/3/3)
ADX3647-
CN8762
KM200NA6
CN8763
KM200NA7
FA2
FA3
FA1
FAN CONNECT ASS'Y
AWV2553-
AWW1364
CN8761
KM200NA4
TO POWER SUPPLY UNIT
J110(15)
ADX3636-
P6
J109(14)
ADX3635-
VBUS
D-
D+
GND
SHIELD
FAN_VCC2
FAN_VCC1
GND
FAN_NG2
J119(4)
ADX3645-
V+5_1V_STB
GND
GND
GND
GND
GND
V+6_5V
V+6_5V
V+6_5V
V+6_5V
V+6_5V
GND
V+12V
V+12V
AC_DET
GND
V+17V
GND
GND
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
GND
NC(RELAY)
M_SW_DET
CN4107
AKM1276- -TBB
M6
CN4202
KM200NA4
M5
CN4210
KM200NA15
M3
CN4207
KM200NA14
M2
M1
M4
M1
M1
M1
MAIN ASS'Y(AU)
AWV2557- (PDP-LX509A)
MAIN ASS'Y(AU D)
AWV2588- (PDP-C509A)
M15
CN4208
KM200NA7
M11
CN4209
KM200NA10
J117
(7/3/3)
ADX3643-
GND
RLS_L
V+3_4V_ACT2
V+3_4V_STB
REM
GND
NC
LED-
LED_ON
LED_OFF
LED_TIMER
LED-
LED-
GND
KEY2
KEY1
V+3_4V_STB
J116
(10/6/4)
ADX3642-
GND
RLS_L
V+3_4V_ACT2
V+3_4V_STB
REM
GND
LED-
LED_ON
LED_OFF
LED_TIMER
LED-
LED-
GND
KEY2
KEY1
V+3_4V_STB
CN8736
AKM1422- -TBB
RL1
RLS ASS'Y
AWV2553-
AWW1365
CN8751
AKM1289- -TBB
RE1
IR ASS'Y
AWV2553-
AWW1363
CN8721
AKM1425- -TBB
L1
LED ASS'Y
AWV2553-
AWW1362
CN8701
AKM1431-
SW1
SIDE KEY
ASS'Y
AWV2553-
AWW1361


UPPLY UNIT
J109(14)
ADX3635-
P7
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
GND
GND
NC(RELAY)
M_SW_DET
CN4207
KM200NA14
TO DIGITAL ASS'Y
CN4105
AKM1398- -TBB
M1
J211
(40)
ADD1533-
D12
CN4101
AKM1399- -TBB
M4
J212
(50)
ADD1534-
D11
CN4003
AKM1399- -TBB
M12
J213(50)
ADD1535-
CN7503
AKM1399- -TBB
I03
CN4004
AKM1398- -TBB
M13
J214(40)
ADD1536-
CN7504
AKM1398- -TBB
I04
FERRITE CORE
F0011
ATX1048-
CN4005
AKP1320-
M14
V+6_5V
GND
V+3_4V_STB
V+3_4V_D
GND
NC(V+8V_IO)
V+12V
CN7501
AKM1377-
I01
SIDE IO ASS'Y
(US R)
AWV2553-
AWW1356
S1
CN8601
AKM1438-
FERRITE CORE
L0001
ATX1044-
J118
(11)
ADX3644-
HP_PLUG
GND
SIDE_R
GND
SIDE_L
GND
HP_R
GND
HP_L
GND
SIDE_V
CN7505
AKM1371-
I05
TO POWER SUPPLY UNIT
J111(5)
ADX3637-
P5
V+17V
V+17V
GND
GND
GND
CN7502
B5P-VH
I02
IO_AUDIO ASS'Y
(AU)
AWV2553-
AWW1355
TO SPEAKER
JA8551
AKE1065-
R+
R-
L-
L+
I06
CN7506
AKM1385- -TBB
FERRITE CORE
F0012
ATX1048-
J215
(12)
ADD1537-
CN8801
AKM1388- -TBB
PC1
PC ASS'Y
(US R,EU SD)
AWV2553-
AWW1359

CONNECTOR PIN ASSIGN

CN4003 M12 → CN7503 I03

1→50. GND
2→49. HP_PLUG
3→48. WP_EDID
4→47. DSUB_DET
5→46. AC_HP_MUTE
6→45. GND
7→44. SDA_AV
8→43. SCL_AV
9→42. GND
10→41. AC_A_MUTE
11→40. RST_MSP
12→39. OTW
13→38. A_NG_B
14→37. GND
15→36. I2S_BCLK_DTV
16→35. GND
17→34. I2S_LRCLK_DTV
18→33. I2S_SDATA_DTV
19→32. GND
20→31. GND
21→30. GND
22→29. SPDIF_HDMI
23→28. GND
24→27. GND
25→26. SPDIF_DTV
26→25. GND
27→24. EMMA_DA_GY
28→23. EMMA_DA_BCB
29→22. EMMA_DA_RCR
30→21. GND
31→20. EXT_HD
32→19. EXT_VD
33→18. INT_VD
34→17. INT_HD
35→16. NC(CLP_RGB1)
36→15. CLP_RGB2
37→14. GND
38→13. SDA_AV5
39→12. SCL_AV5
40→11. GND
41→10. SR_OUT
42→ 9. NC(TXD_SR)
43→ 8. NC(RXD_SR)
44→ 7. GND
45→ 6. TXD_232C_1
46→ 5. RXD_232C_1
47→ 4. NC(232C_EN_B)
48→ 3. 232C_DET
49→ 2. RST4
50→ 1. GND(IO_DET)

CN4004 M13 → CN7504 I04

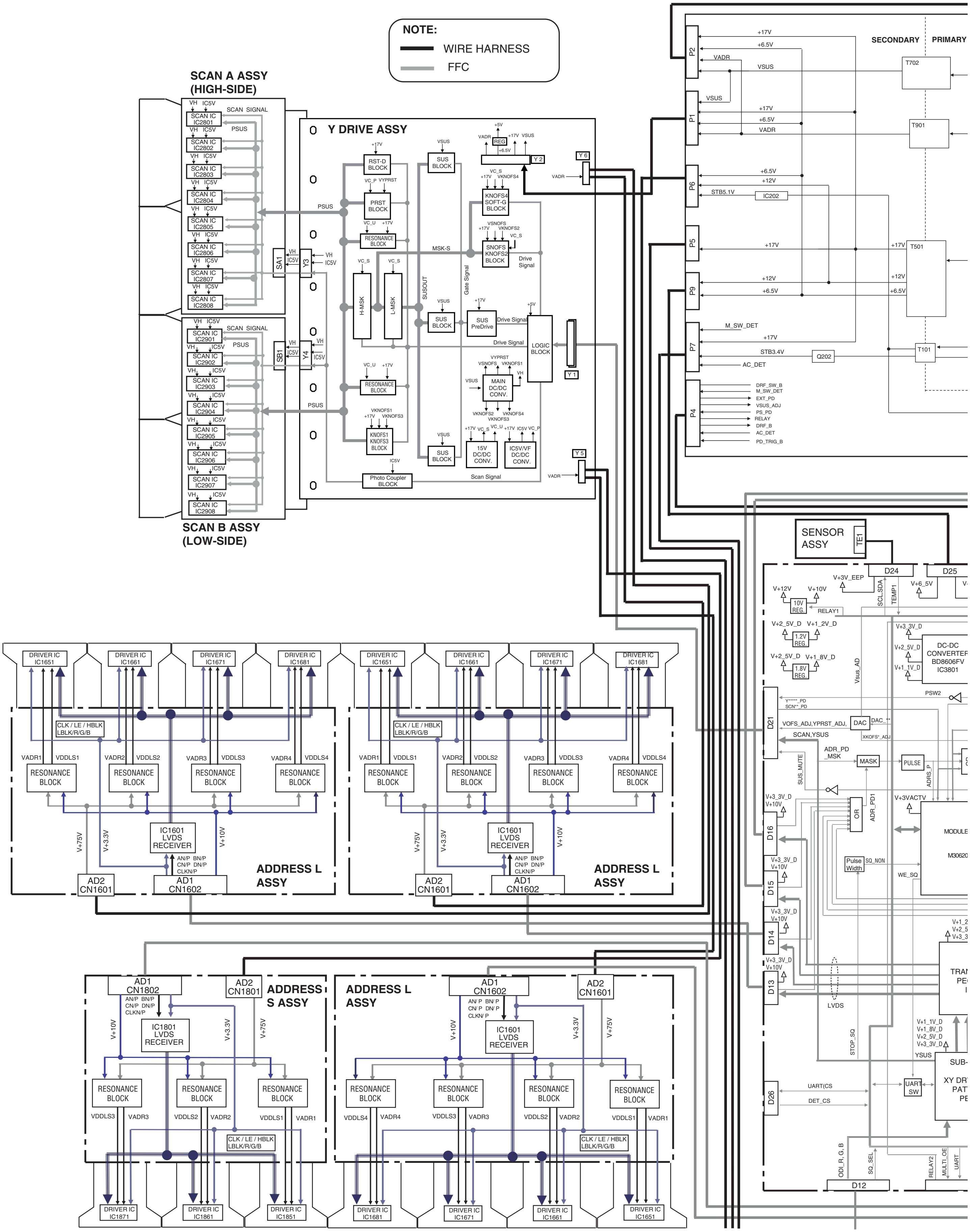
1→40. GND
2→39. RCR_AD
3→38. GND
4→37. BCB_AD
5→36. GND
6→35. GY_AD
7→34. GND
8→33. NC(RCR_VDEC)
9→32. GND
10→31. NC(BCB_VDEC)
11→30. GND
12→29. NC(GY_VDEC)
13→28. GND
14→27. NC(FB_VDEC)
15→26. GND
16→25. VBI_Y
17→24. GND
18→23. MAIN_C
19→22. GND
20→21. MAIN_Y
21→20. GND
22→19. SUB_C
23→18. GND
24→17. SUB_Y
25→16. GND
26→15. A_TUNER_V
27→14. GND
28→13. DT_MON_CVBS
29→12. GND
30→11. AIR_SIF
31→10. GND
32→ 9. AC_AM_MUTE
33→ 8. TEMP2
34→ 7. NC (AC_SC1_MUTE)
35→ 6. NC(LIMK_IO2)
36→ 5. NC (AC_SC2_MUTE)
37→ 4. NC(LIMK_IO3)
38→ 3. NC (AC_SC3_MUTE)
39→ 2. IR_OUT
40→ 1. GND

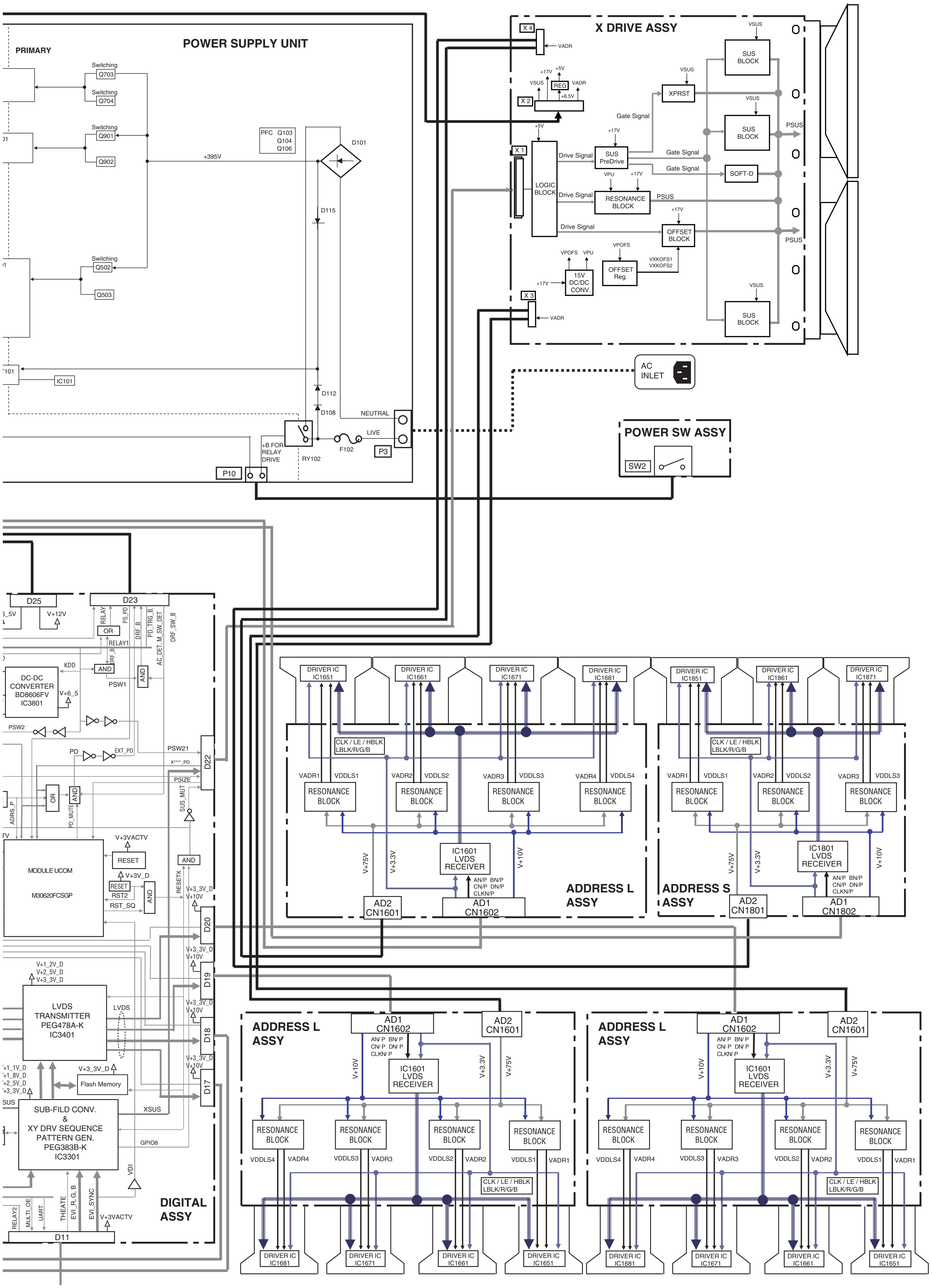
CN7506 I06 → CN8801 PC1

1→12. V+3_4V_STB
2→11. PC_HD
3→10. PC_VD
4→ 9. GND
5→ 8. PC_R
6→ 7. GND
7→ 6. PC_B
8→ 5. GND
9→ 4. PC_G
10→ 3. WP_EDID
11→ 2. V+5V_IO
12→ 1. GND

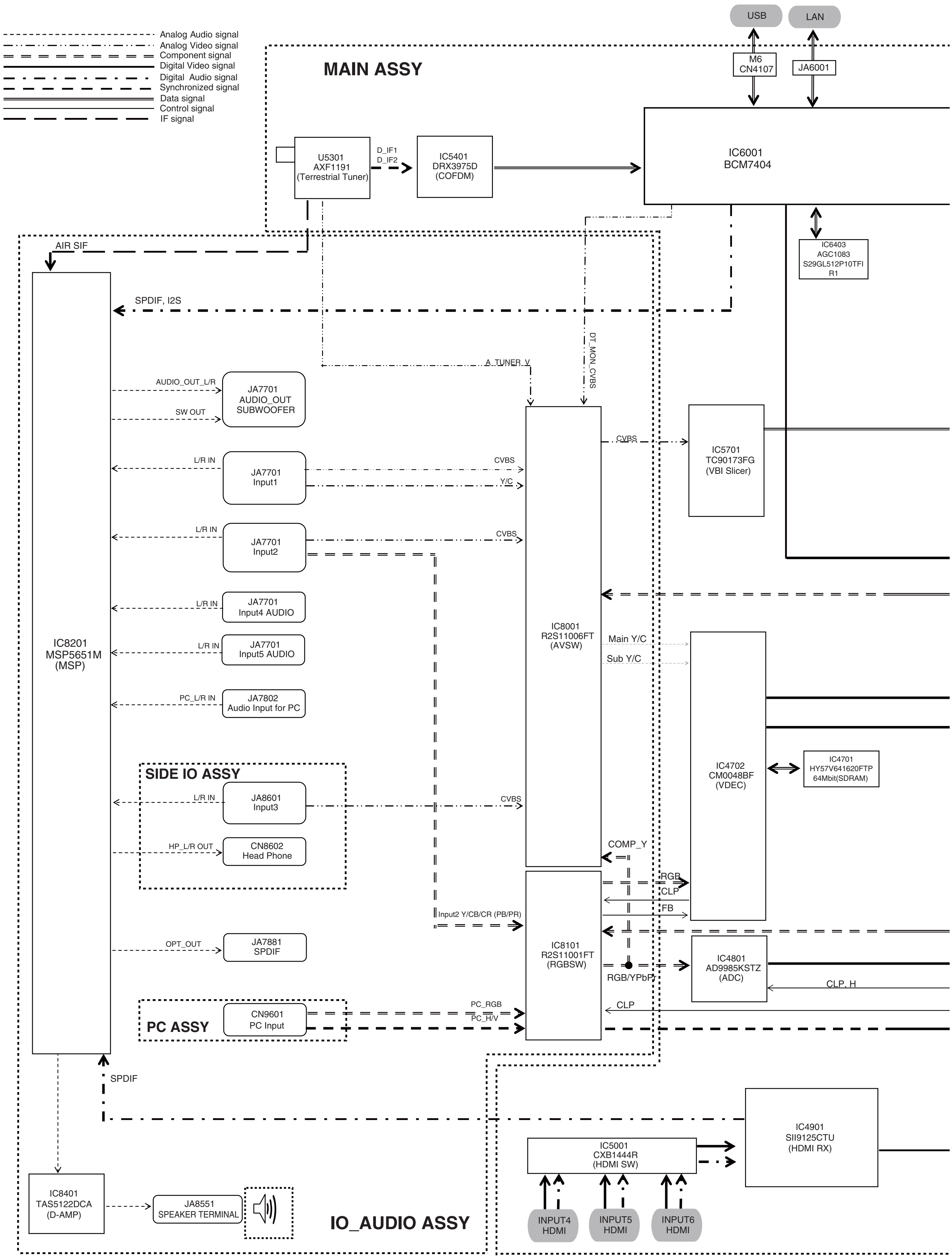
OVERALL DIAGRAM
PDP-LX509A
PDP-C509A

4.3 OVERALL BLOCK DIAGRAM (1/2)

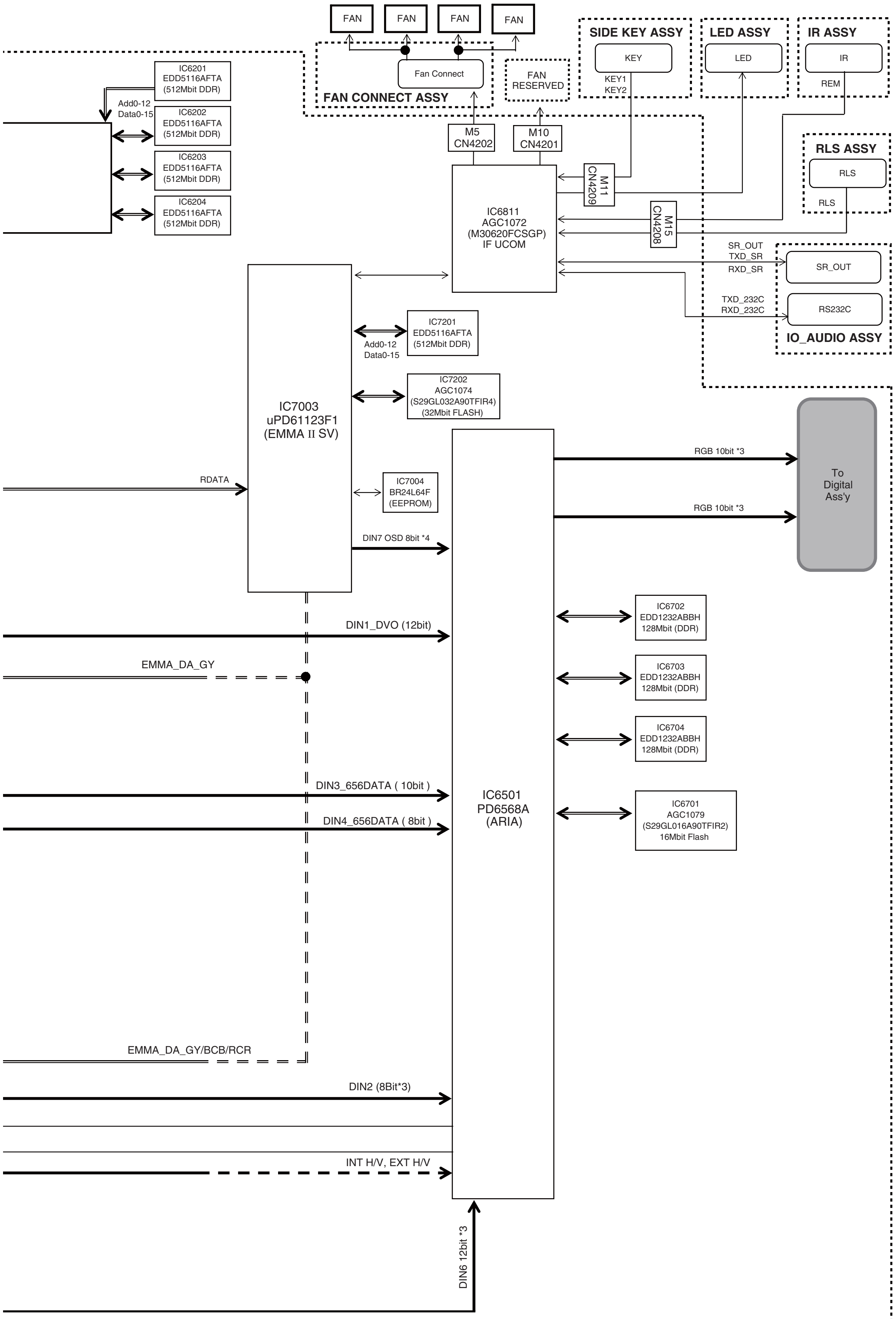

NOTE:
WIRE HARNESS
FFC
SCAN A ASSY
(HIGH-SIDE)
SCAN B ASSY
(LOW-SIDE)
SCAN IC IC2801
SCAN IC IC2802
SCAN IC IC2803
SCAN IC IC2804
SCAN IC IC2805
SCAN IC IC2806
SCAN IC IC2807
SCAN IC IC2808
SCAN IC IC2901
SCAN IC IC2902
SCAN IC IC2903
SCAN IC IC2904
SCAN IC IC2905
SCAN IC IC2906
SCAN IC IC2907
SCAN IC IC2908
VH
IC5V
SCAN SIGNAL
PSUS
SA1
SB1
Y3
Y4
Y DRIVE ASSY
RST-D BLOCK
PRST BLOCK
RESONANCE BLOCK
H-MSK
L-MSK
SUS BLOCK
SUSOUT
Gate Signal
MSK-S
KNOFS4 SOFT-G BLOCK
SNOFS KNOFS2 BLOCK
KNOFS1 KNOFS3 BLOCK
SUS PreDrive
Drive Signal
LOGIC BLOCK
MAIN DC/DC CONV.
15V DC/DC CONV.
IC5V/VF DC/DC CONV.
Photo Coupler BLOCK
Scan Signal
REG
VADR
VSUS
+17V
+6.5V
+5V
VC_S
VC_P
VC_U
VYPRST
VKNOFS1
VKNOFS2
VKNOFS3
VKNOFS4
VSNOFS
Y 1
Y 2
Y 5
Y 6
P2
P1
P6
P5
P9
P7
P4
SECONDARY
PRIMARY
T702
T901
T501
T101
IC202
Q202
STB5.1V
STB3.4V
M_SW_DET
AC_DET
DRF_SW_B
EXT_PD
VSUS_ADJ
PS_PD
RELAY
DRF_B
PD_TRIG_B
+12V
SENSOR ASSY
TE1
D24
D25
D21
D16
D15
D14
D13
D26
D12
V+3V_EEP
V+12V
V+10V
V+6_5V
10V REG.
RELAY1
SCL,SDA
TEMP1
V+2_5V_D
V+1_2V_D
1.2V REG.
V+1_8V_D
1.8V REG.
V+3_3V_D
V+1_1V_D
DC-DC CONVERTER BD8606FV IC3801
Vsus_AD
PSW2
VOFS_ADJ,YPRST_ADJ,
SCAN,YSUS
DAC
XKOFS*_ADJ
ADR_PD
_MSK
MASK
PULSE
SUS_MUTE
ADRS_P
OR
ADR_PD1
V+3VACTV
MODULE
M30620
Pulse Width
SQ_NON
WE_SQ
LVDS
STOP_SQ
YSUS
UART(CS
DET_CS
UART SW
SUB-
XY DR
PAT
ODI_R_G_B
SQ_SEL
RELAY2
MULTI_OE
UART
TRA
DRIVER IC IC1651
DRIVER IC IC1661
DRIVER IC IC1671
DRIVER IC IC1681
DRIVER IC IC1871
DRIVER IC IC1861
DRIVER IC IC1851
CLK / LE / HBLK
LBLK/R/G/B
VADR1
VADR2
VADR3
VADR4
VDDLS1
VDDLS2
VDDLS3
VDDLS4
RESONANCE BLOCK
V+75V
V+3.3V
V+10V
IC1601 LVDS RECEIVER
IC1801 LVDS RECEIVER
AN/P BN/P
CN/P DN/P
CLKN/P
AD2 CN1601
AD1 CN1602
AD1 CN1802
AD2 CN1801
ADDRESS L ASSY
ADDRESS S ASSY


POWER SUPPLY UNIT
PRIMARY
Switching
Q703
Switching
Q704
Switching
Q901
Q902
Switching
Q502
Q503
PFC Q103
Q104
Q106
D101
+395V
D115
IC101
D112
D108
NEUTRAL
LIVE
F102
P3
+B FOR RELAY DRIVE
RY102
P10
X DRIVE ASSY
X 4
VADR
X 2
VSUS
+17V
+5V
REG
VADR
+6.5V
+5V
X 1
LOGIC BLOCK
Drive Signal
SUS PreDrive
VPU
+17V
Drive Signal
RESONANCE BLOCK
Drive Signal
Gate Signal
Gate Signal
Gate Signal
XPRST
VSUS
SUS BLOCK
VSUS
SUS BLOCK
SOFT-D
PSUS
PSUS
+17V
OFFSET BLOCK
PSUS
VPOFS
OFFSET Reg.
VXKOFS1
VXKOFS2
VPOFS
VPU
15V DC/DC CONV.
+17V
X 3
VADR
VSUS
SUS BLOCK
AC INLET
POWER SW ASSY
SW2
D25
D23
V+12V
RELAY
PS_PD
DRF_B
PD_TRG_B
AC_DET_M_SW_DET
DRF_SW_B
OR
RELAY1
KDD
AND
DRF_B
AND
PSW1
DC-DC CONVERTER BD8606FV IC3801
V+6_5
PSW2
PD
EXT_PD
PSW21
X****_PD
PSIZE
D22
ADRS_P
OR
AND
PD_MUTE
SUS_MUT
V+3VACTV
MODULE UCOM
M30620FCSGP
RESET
V+3V_D
RESET
RST2
RST_SQ
AND
AND
RESETX
V+3_3V_D
V+10V
D20
V+3_3V_D
V+10V
D19
V+1_2V_D
V+2_5V_D
V+3_3V_D
LVDS TRANSMITTER PEG478A-K IC3401
LVDS
V+3_3V_D
V+10V
D18
V+3_3V_D
V+10V
D17
V+3_3V_D
Flash Memory
V+1_1V_D
V+1_8V_D
V+2_5V_D
V+3_3V_D
SUS
SUB-FILD CONV. & XY DRV SEQUENCE PATTERN GEN. PEG383B-K IC3301
XSUS
GPIO8
VDI
RELAY2
MULTI_OE
UART
THEATE
EVI_R, G, B
EVI_SYNC
V+3VACTV
D11
DIGITAL ASSY
DRIVER IC IC1651
DRIVER IC IC1661
DRIVER IC IC1671
DRIVER IC IC1681
CLK / LE / HBLK LBLK/R/G/B
VADR1 VDDLS1
VADR2 VDDLS2
VADR3 VDDLS3
VADR4 VDDLS4
RESONANCE BLOCK
V+75V
V+3.3V
IC1601 LVDS RECEIVER
V+10V
AN/P BN/P CN/P DN/P CLKN/P
AD2 CN1601
AD1 CN1602
ADDRESS L ASSY
DRIVER IC IC1851
DRIVER IC IC1861
DRIVER IC IC1871
CLK / LE / HBLK LBLK/R/G/B
VADR1 VDDLS1
VADR2 VDDLS2
VADR3 VDDLS3
RESONANCE BLOCK
V+75V
V+3.3V
IC1801 LVDS RECEIVER
V+10V
AN/P BN/P CN/P DN/P CLKN/P
AD2 CN1801
AD1 CN1802
ADDRESS S ASSY
ADDRESS L ASSY
AD1 CN1602
AD2 CN1601
AN/P BN/P CN/P DN/P CLKN/P
V+10V
IC1601 LVDS RECEIVER
V+3.3V
V+75V
RESONANCE BLOCK
VDDLS4 VADR4
VDDLS3 VADR3
VDDLS2 VADR2
VDDLS1 VADR1
CLK / LE / HBLK LBLK/R/G/B
DRIVER IC IC1681
DRIVER IC IC1671
DRIVER IC IC1661
DRIVER IC IC1651
ADDRESS L ASSY
AD1 CN1602
AD2 CN1601
AN/P BN/P CN/P DN/P CLKN/P
V+10V
IC1601 LVDS RECEIVER
V+3.3V
V+75V
RESONANCE BLOCK
VDDLS4 VADR4
VDDLS3 VADR3
VDDLS2 VADR2
VDDLS1 VADR1
CLK / LE / HBLK LBLK/R/G/B
DRIVER IC IC1681
DRIVER IC IC1671
DRIVER IC IC1661
DRIVER IC IC1651

4.4 OVERALL BLOCK DIAGRAM (2/2)

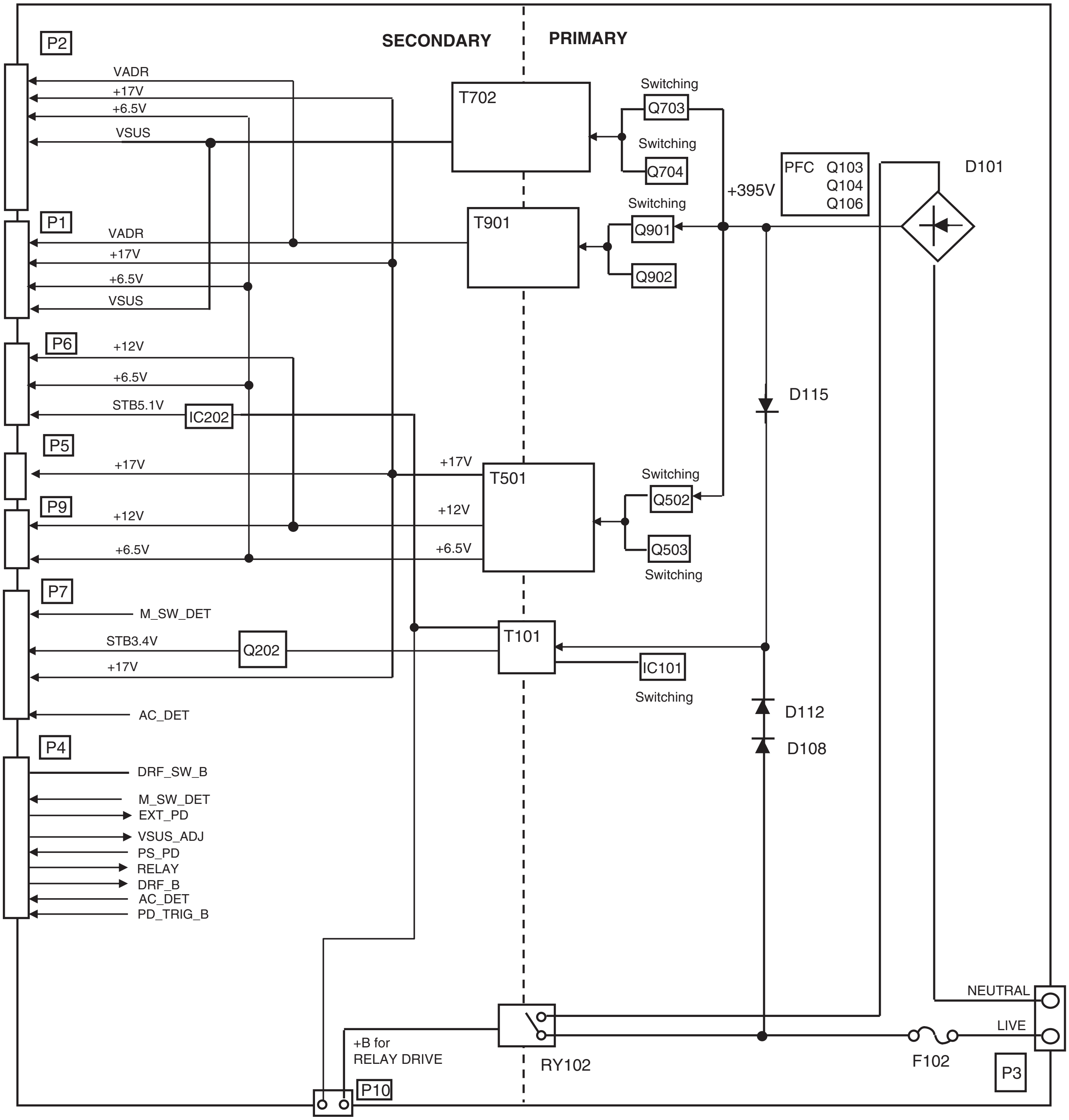


Analog Audio signal
Analog Video signal
Component signal
Digital Video signal
Digital Audio signal
Synchronized signal
Data signal
Control signal
IF signal
USB
LAN
MAIN ASSY
M6
CN4107
JA6001
U5301
AXF1191
(Terrestrial Tuner)
D_IF1
D_IF2
IC5401
DRX3975D
(COFDM)
IC6001
BCM7404
IC6403
AGC1083
S29GL512P10TFI
R1
AIR SIF
SPDIF, I2S
A_TUNER_V
DT_MON_CVBS
AUDIO_OUT_L/R
SW OUT
JA7701
AUDIO_OUT
SUBWOOFER
CVBS
IC5701
TC90173FG
(VBI Slicer)
L/R IN
JA7701
Input1
CVBS
Y/C
L/R IN
JA7701
Input2
CVBS
L/R IN
JA7701
Input4 AUDIO
L/R IN
JA7701
Input5 AUDIO
IC8201
MSP5651M
(MSP)
IC8001
R2S11006FT
(AVSW)
Main Y/C
Sub Y/C
PC_L/R IN
JA7802
Audio Input for PC
IC4702
CM0048BF
(VDEC)
IC4701
HY57V641620FTP
64Mbit(SDRAM)
SIDE IO ASSY
L/R IN
JA8601
Input3
CVBS
HP_L/R OUT
CN8602
Head Phone
COMP_Y
RGB
CLP
FB
Input2 Y/CB/CR (PB/PR)
OPT_OUT
JA7881
SPDIF
IC8101
R2S11001FT
(RGBSW)
RGB/YPbPr
IC4801
AD9985KSTZ
(ADC)
CLP, H
CLP
PC_RGB
PC_H/V
PC ASSY
CN9601
PC Input
SPDIF
IC4901
SII9125CTU
(HDMI RX)
IC5001
CXB1444R
(HDMI SW)
IC8401
TAS5122DCA
(D-AMP)
JA8551
SPEAKER TERMINAL
IO_AUDIO ASSY
INPUT4
HDMI
INPUT5
HDMI
INPUT6
HDMI

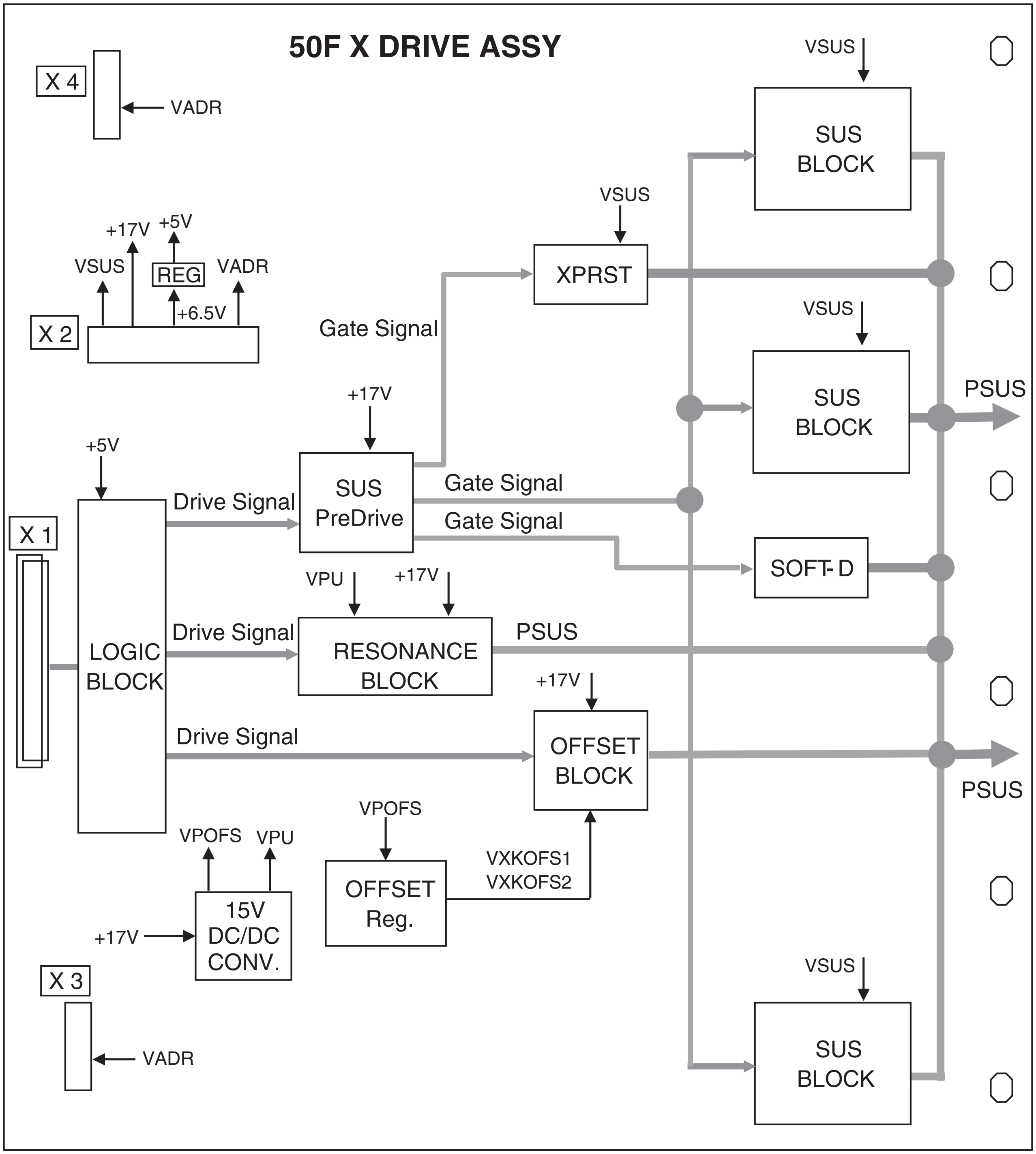

FAN
FAN
FAN
FAN
Fan Connect
FAN CONNECT ASSY
FAN RESERVED
SIDE KEY ASSY
KEY
KEY1
KEY2
LED ASSY
LED
IR ASSY
IR
REM
RLS ASSY
RLS
RLS
IC6201 EDD5116AFTA (512Mbit DDR)
IC6202 EDD5116AFTA (512Mbit DDR)
IC6203 EDD5116AFTA (512Mbit DDR)
IC6204 EDD5116AFTA (512Mbit DDR)
Add0-12
Data0-15
M5 CN4202
M10 CN4201
M11 CN4209
M15 CN4208
IC6811 AGC1072 (M30620FCSGP) IF UCOM
SR_OUT
TXD_SR
RXD_SR
TXD_232C
RXD_232C
SR_OUT
RS232C
IO_AUDIO ASSY
IC7003 uPD61123F1 (EMMA II SV)
IC7201 EDD5116AFTA (512Mbit DDR)
Add0-12
Data0-15
IC7202 AGC1074 (S29GL032A90TFIR4) (32Mbit FLASH)
IC7004 BR24L64F (EEPROM)
RDATA
DIN7 OSD 8bit *4
RGB 10bit *3
RGB 10bit *3
To Digital Ass'y
DIN1_DVO (12bit)
EMMA_DA_GY
IC6702 EDD1232ABBH 128Mbit (DDR)
IC6703 EDD1232ABBH 128Mbit (DDR)
IC6704 EDD1232ABBH 128Mbit (DDR)
DIN3_656DATA (10bit)
DIN4_656DATA (8bit)
IC6501 PD6568A (ARIA)
IC6701 AGC1079 (S29GL016A90TFIR2) 16Mbit Flash
EMMA_DA_GY/BCB/RCR
DIN2 (8Bit*3)
INT H/V, EXT H/V
DIN6 12bit *3

4.5 POWER SUPPLY UNIT

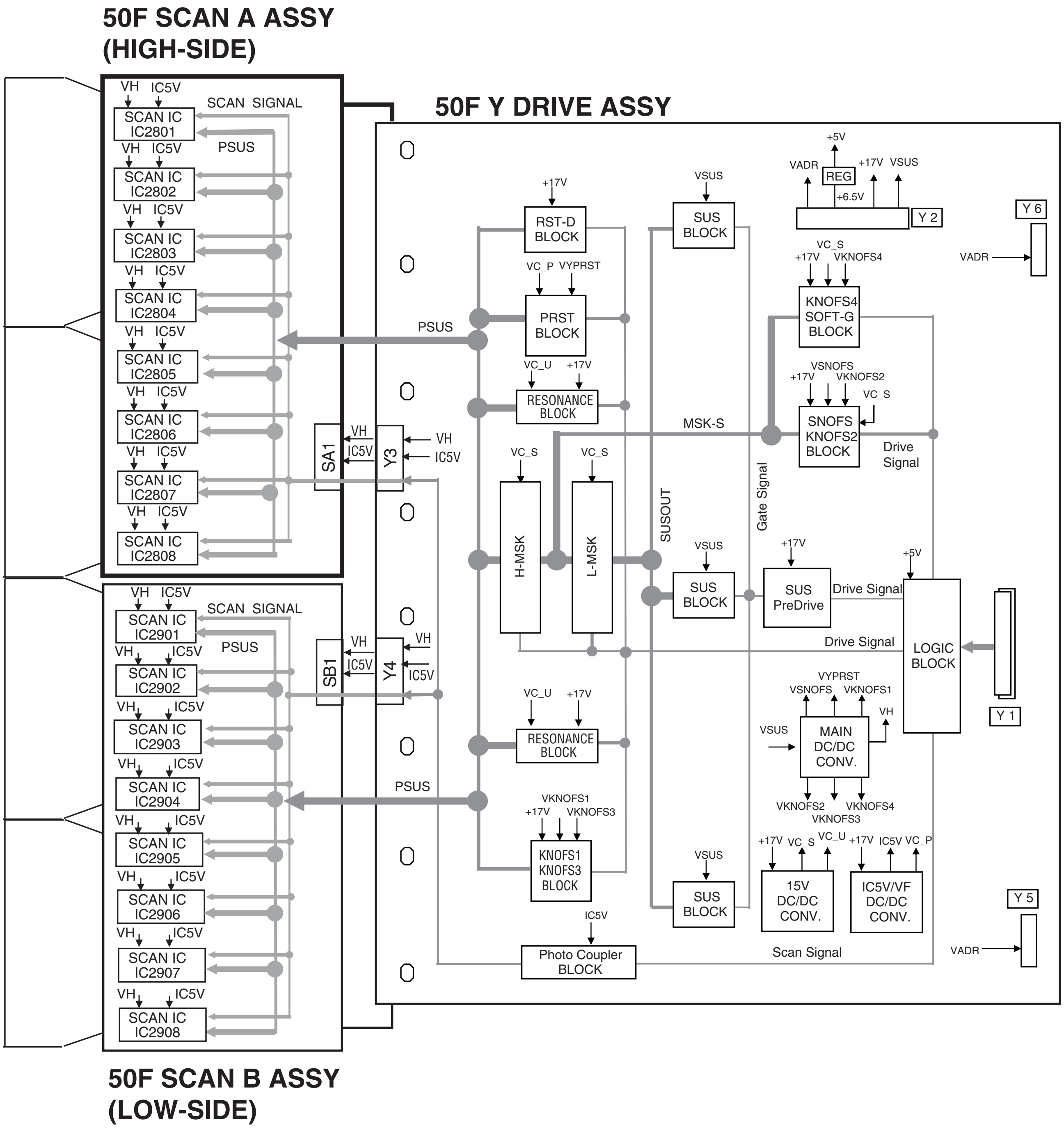
POWER SUPPLY UNIT


SECONDARY
PRIMARY
P2
VADR
+17V
+6.5V
VSUS
P1
VADR
+17V
+6.5V
VSUS
P6
+12V
+6.5V
STB5.1V
IC202
P5
+17V
P9
+12V
+6.5V
P7
M_SW_DET
STB3.4V
Q202
+17V
AC_DET
P4
DRF_SW_B
M_SW_DET
EXT_PD
VSUS_ADJ
PS_PD
RELAY
DRF_B
AC_DET
PD_TRIG_B
T702
Switching
Q703
Switching
Q704
T901
Switching
Q901
Q902
+395V
PFC Q103 Q104 Q106
D101
D115
+17V
+12V
+6.5V
T501
Switching
Q502
Q503
Switching
T101
IC101
Switching
D112
D108
+B for RELAY DRIVE
P10
RY102
NEUTRAL
LIVE
F102
P3

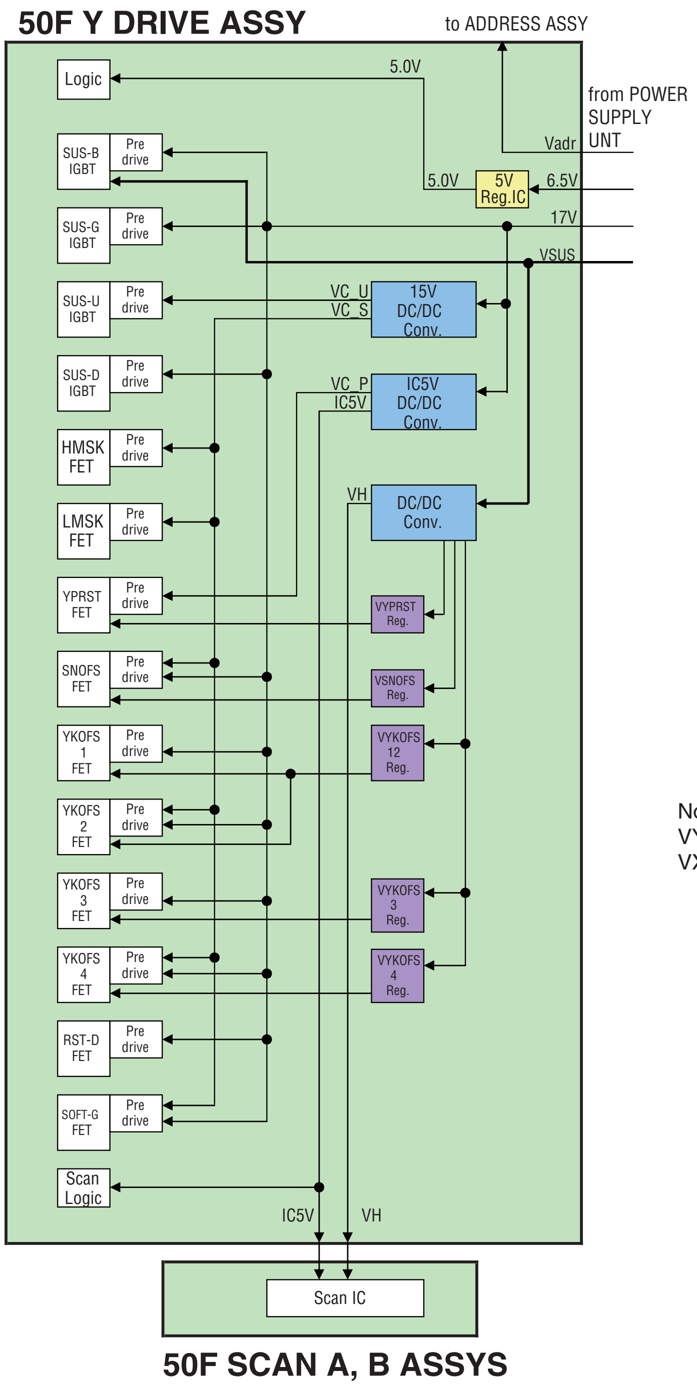
4.6 50F X DRIVE ASSY

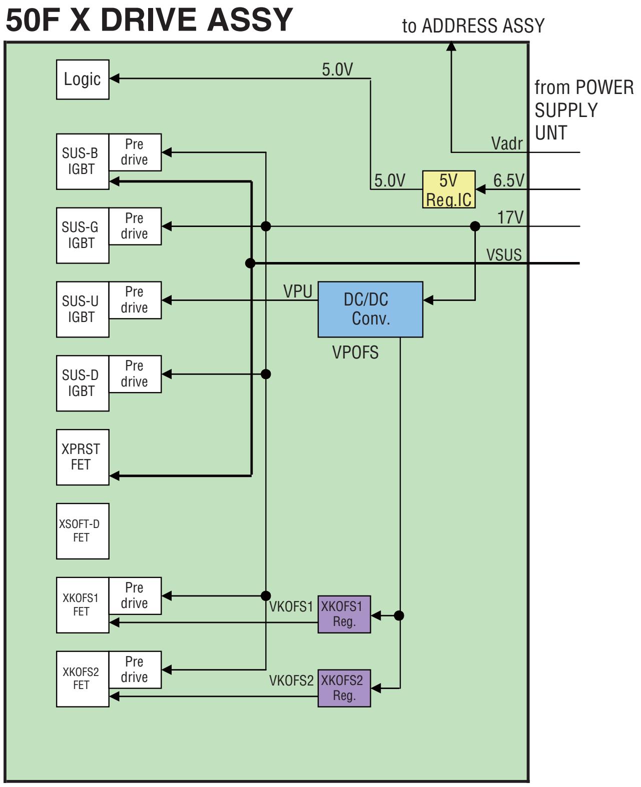

50F X DRIVE ASSY
X 4
VADR
X 2
VSUS
+17V
+5V
REG
VADR
+6.5V
X 1
+5V
LOGIC BLOCK
Drive Signal
SUS PreDrive
+17V
Gate Signal
XPRST
VSUS
Gate Signal
Gate Signal
SOFT-D
Drive Signal
RESONANCE BLOCK
VPU
+17V
PSUS
Drive Signal
OFFSET BLOCK
+17V
VPOFS
OFFSET Reg.
VXKOFS1
VXKOFS2
VPOFS
VPU
15V DC/DC CONV.
+17V
X 3
VADR
VSUS
SUS BLOCK
VSUS
SUS BLOCK
VSUS
SUS BLOCK
PSUS
PSUS

4.7 50F Y DRIVE, 50F SCAN A and B ASSYS


50F SCAN A ASSY
(HIGH-SIDE)
VH
IC5V
SCAN IC
IC2801
SCAN SIGNAL
PSUS
SCAN IC
IC2802
SCAN IC
IC2803
SCAN IC
IC2804
SCAN IC
IC2805
SCAN IC
IC2806
SCAN IC
IC2807
SCAN IC
IC2808
SA1
Y3
50F Y DRIVE ASSY
+5V
VADR
REG
+17V
VSUS
+6.5V
Y 2
Y 6
VADR
+17V
RST-D
BLOCK
VSUS
SUS
BLOCK
VC_P
VYPRST
PRST
BLOCK
PSUS
VC_S
+17V
VKNOFS4
KNOFS4
SOFT-G
BLOCK
VC_U
+17V
RESONANCE
BLOCK
VSNOFS
+17V
VKNOFS2
VC_S
SNOFS
KNOFS2
BLOCK
MSK-S
Drive
Signal
VC_S
VC_S
H-MSK
L-MSK
SUSOUT
Gate Signal
VSUS
SUS
BLOCK
+17V
SUS
PreDrive
Drive Signal
+5V
LOGIC
BLOCK
Drive Signal
Y 1
VC_U
+17V
RESONANCE
BLOCK
VYPRST
VSNOFS
VKNOFS1
VH
VSUS
MAIN
DC/DC
CONV.
VKNOFS2
VKNOFS4
VKNOFS3
PSUS
VKNOFS1
+17V
VKNOFS3
KNOFS1
KNOFS3
BLOCK
+17V
VC_S
VC_U
+17V
IC5V
VC_P
VSUS
SUS
BLOCK
15V
DC/DC
CONV.
IC5V/VF
DC/DC
CONV.
Y 5
IC5V
Photo Coupler
BLOCK
Scan Signal
VADR
VH
IC5V
SCAN IC
IC2901
SCAN SIGNAL
PSUS
SCAN IC
IC2902
SCAN IC
IC2903
SCAN IC
IC2904
SCAN IC
IC2905
SCAN IC
IC2906
SCAN IC
IC2907
SCAN IC
IC2908
SB1
Y4
50F SCAN B ASSY
(LOW-SIDE)

4.8 POWER SUPPLY BLOCK of 50F X, Y DRIVE and 50F SCAN A and B ASSYS

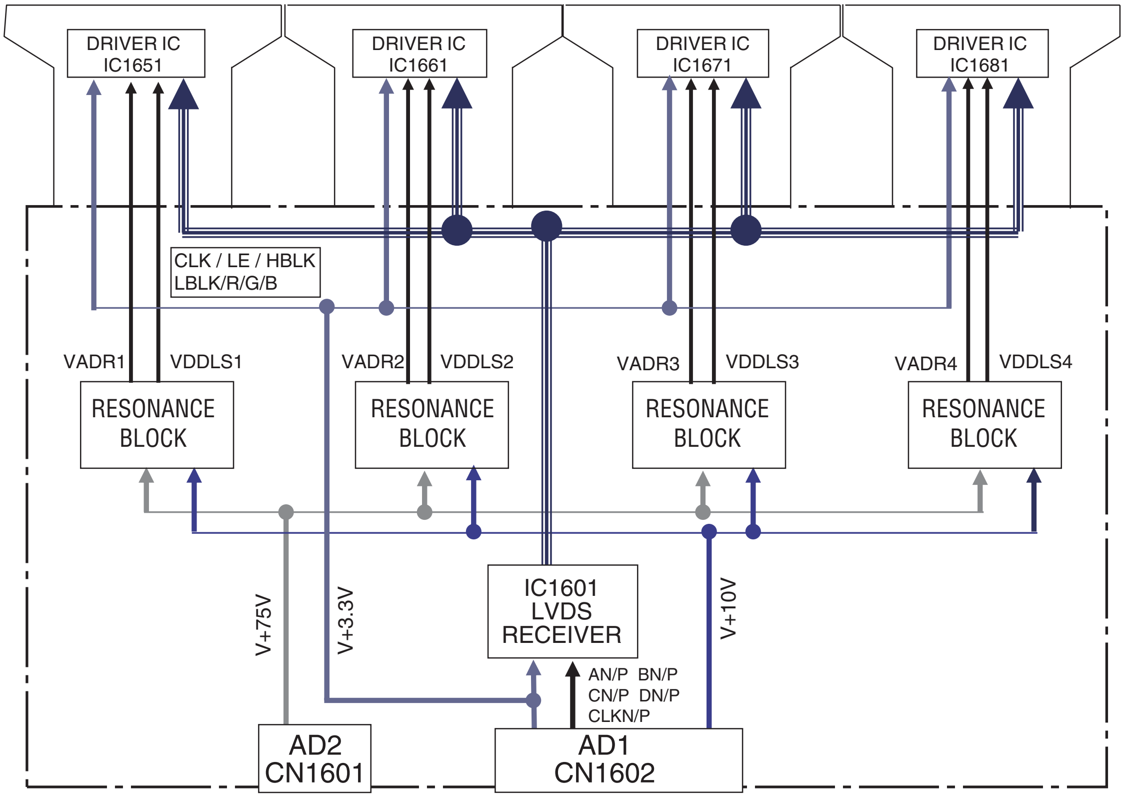

50F Y DRIVE ASSY
to ADDRESS ASSY
from POWER SUPPLY UNT
Vadr
6.5V
17V
VSUS
5.0V
5V Reg.IC
Logic
SUS-B IGBT
SUS-G IGBT
SUS-U IGBT
SUS-D IGBT
HMSK FET
LMSK FET
YPRST FET
SNOFS FET
YKOFS 1 FET
YKOFS 2 FET
YKOFS 3 FET
YKOFS 4 FET
RST-D FET
SOFT-G FET
Scan Logic
Pre drive
VC_U
VC_S
15V DC/DC Conv.
VC_P
IC5V
IC5V DC/DC Conv.
VH
DC/DC Conv.
VYPRST Reg.
VSNOFS Reg.
VYKOFS 12 Reg.
VYKOFS 3 Reg.
VYKOFS 4 Reg.
IC5V
VH
Scan IC
50F SCAN A, B ASSYS


50F X DRIVE ASSY
to ADDRESS ASSY
from POWER SUPPLY UNT
Vadr
5.0V
5V Reg.IC
6.5V
17V
VSUS
Logic
SUS-B IGBT
SUS-G IGBT
SUS-U IGBT
SUS-D IGBT
XPRST FET
XSOFT-D FET
XKOFS1 FET
XKOFS2 FET
Pre drive
VPU
DC/DC Conv.
VPOFS
VKOFS1
XKOFS1 Reg.
VKOFS2
XKOFS2 Reg.

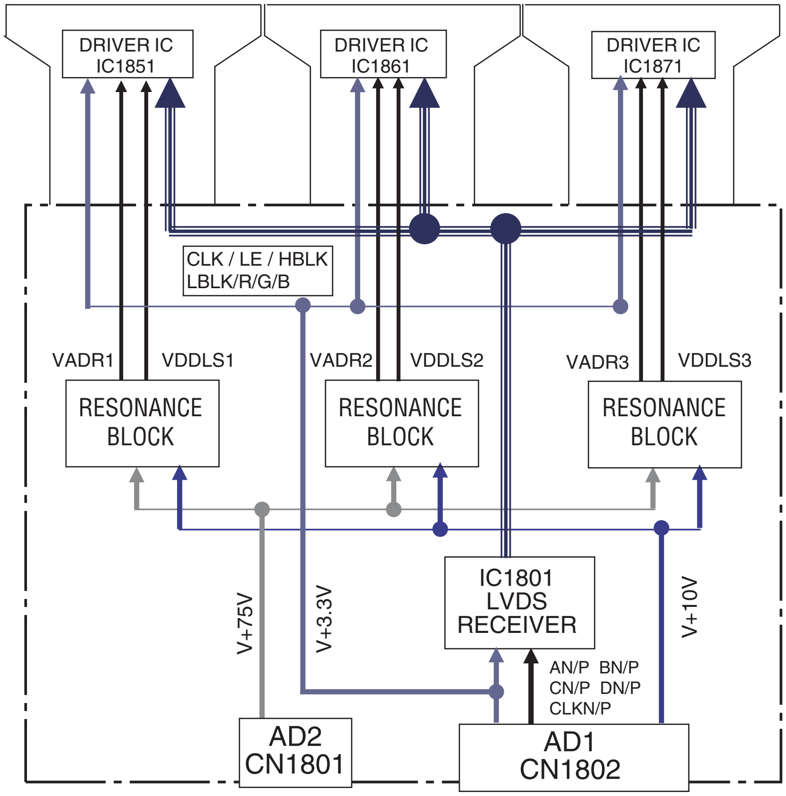
Note:
VYPRST, VSNOFS, VYKOFS12, VYKOFS3, VYKOFS4
VXKOFS1 and VXKOFS2 voltages are electrical volume controls.

4.9 50F ADDRESS L and S ASSYS

50F ADDRESS L ASSY

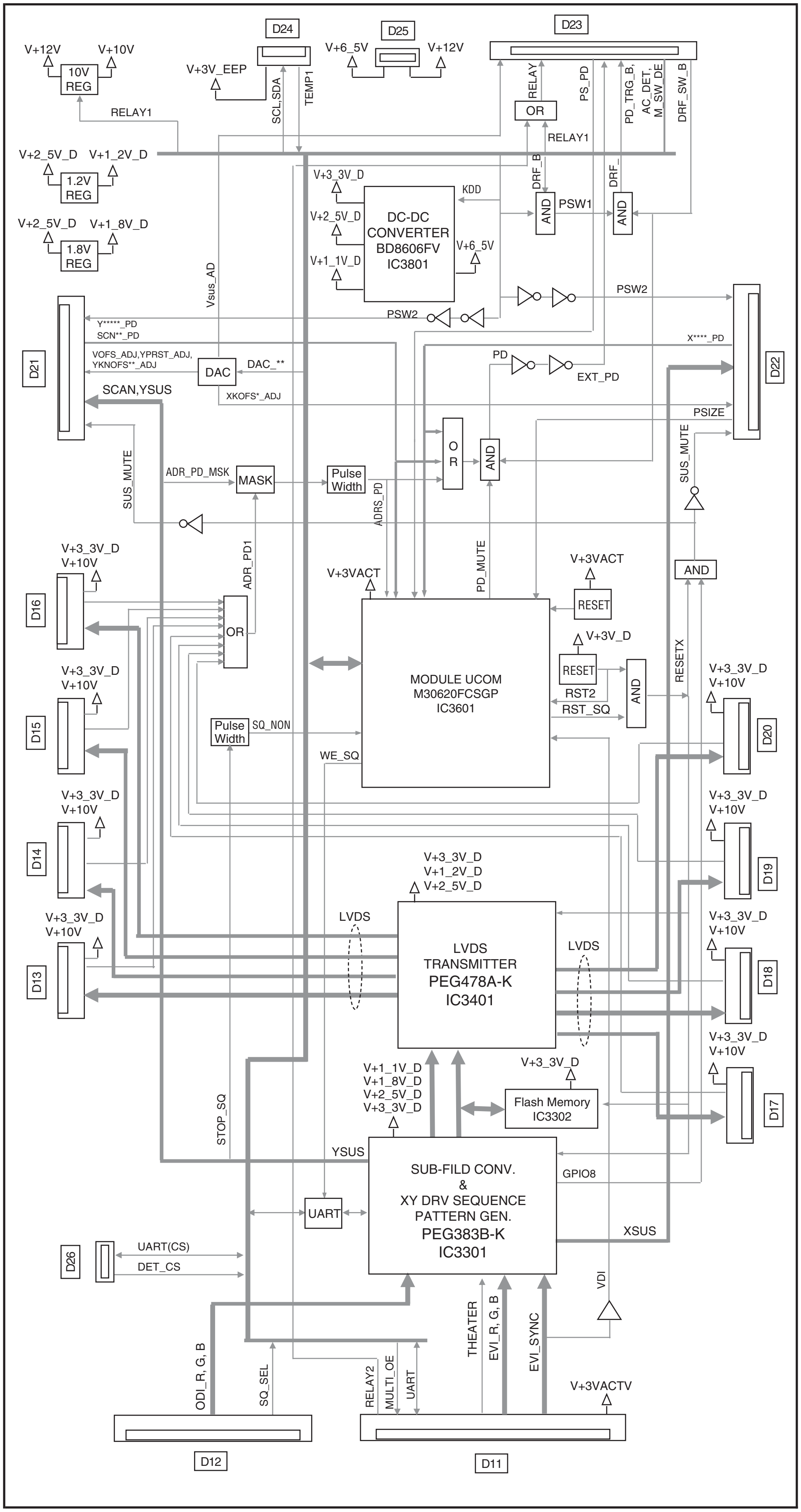

DRIVER IC
IC1651
DRIVER IC
IC1661
DRIVER IC
IC1671
DRIVER IC
IC1681
CLK / LE / HBLK
LBLK/R/G/B
VADR1
VDDLS1
VADR2
VDDLS2
VADR3
VDDLS3
VADR4
VDDLS4
RESONANCE BLOCK
RESONANCE BLOCK
RESONANCE BLOCK
RESONANCE BLOCK
V+75V
V+3.3V
IC1601
LVDS
RECEIVER
V+10V
AN/P BN/P
CN/P DN/P
CLKN/P
AD2
CN1601
AD1
CN1602

50F ADDRESS S ASSY

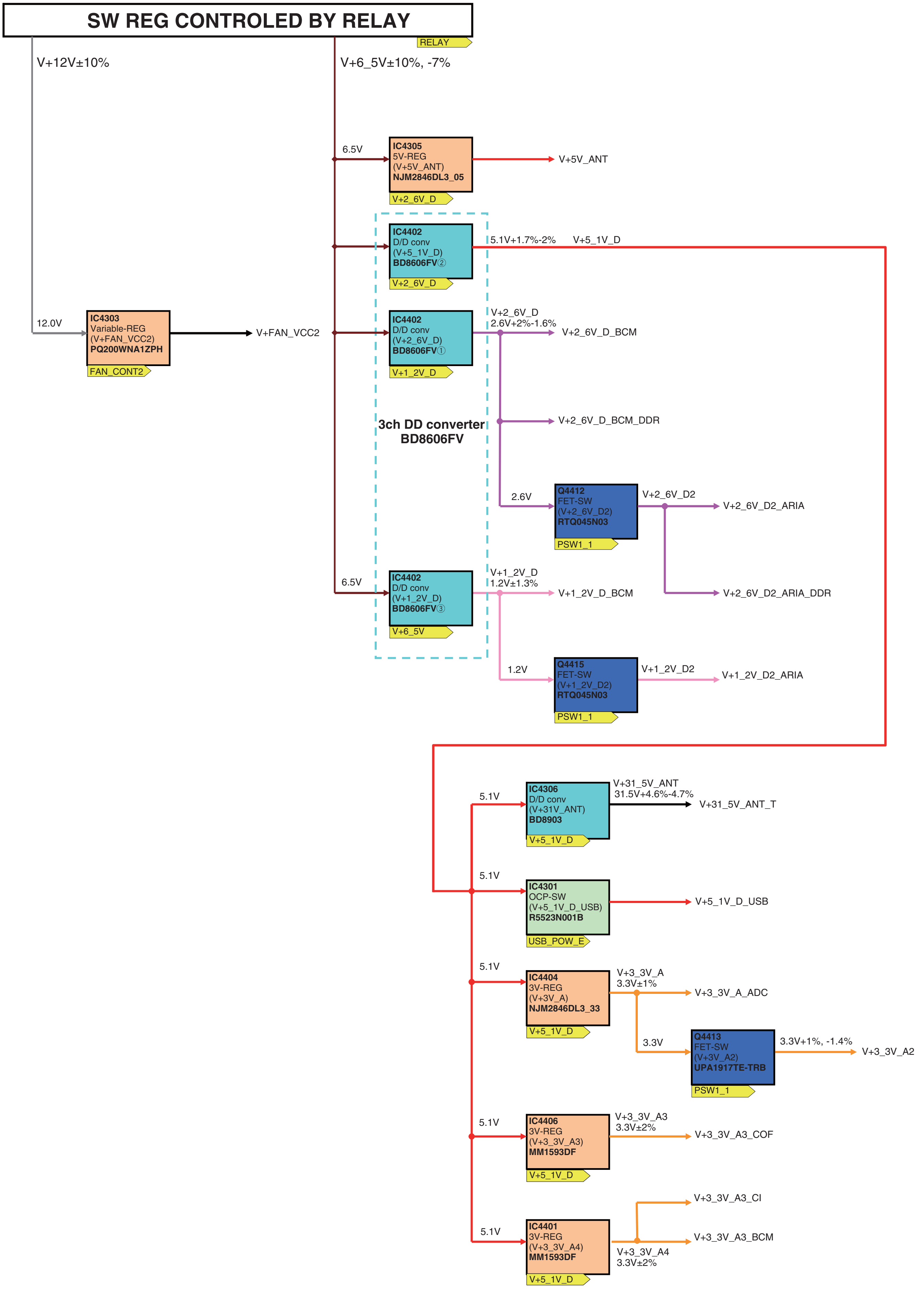

DRIVER IC
IC1851
DRIVER IC
IC1861
DRIVER IC
IC1871
CLK / LE / HBLK
LBLK/R/G/B
VADR1
VDDLS1
VADR2
VDDLS2
VADR3
VDDLS3
RESONANCE BLOCK
RESONANCE BLOCK
RESONANCE BLOCK
V+75V
V+3.3V
IC1801
LVDS
RECEIVER
V+10V
AN/P BN/P
CN/P DN/P
CLKN/P
AD2
CN1801
AD1
CN1802

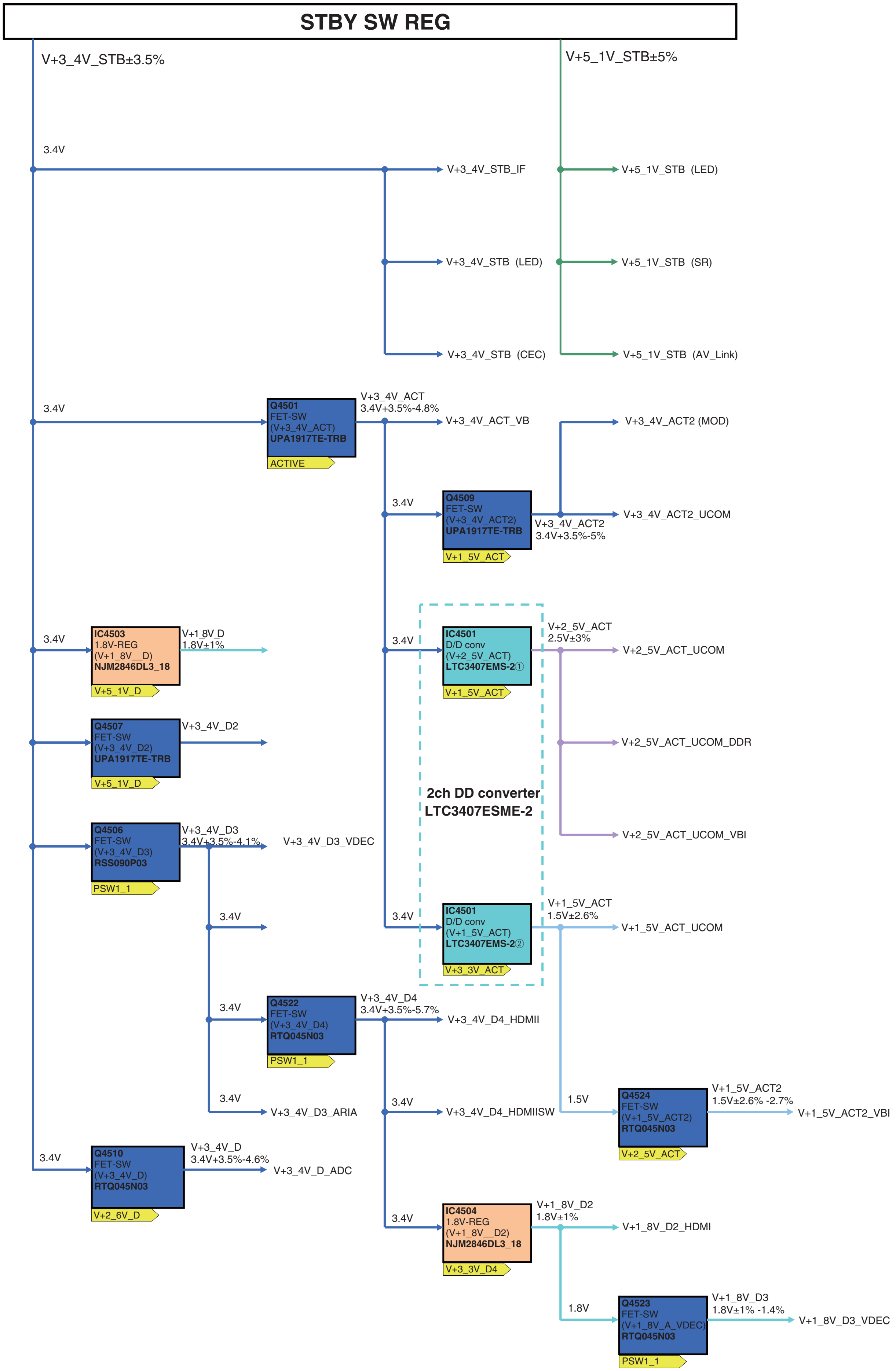
4.10 50F DIGITAL ASSY

50F DIGITAL ASSY

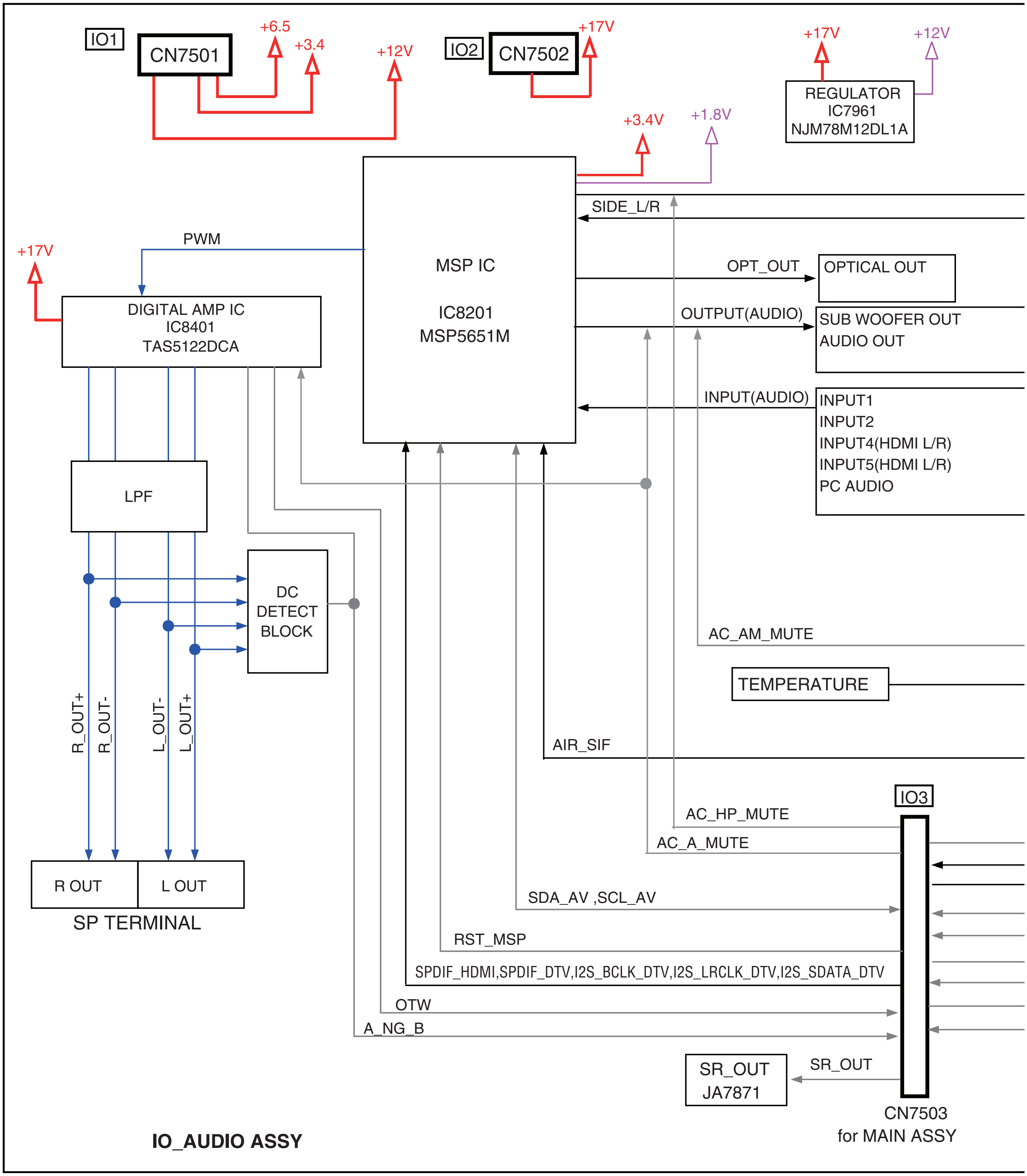

D24
D25
D23
V+12V
V+10V
10V REG
V+3V_EEP
SCL,SDA
TEMP1
V+6_5V
V+12V
RELAY
OR
PS_PD
PD_TRG_B,
AC_DET,
M_SW_DE
DRF_SW_B
RELAY1
RELAY1
V+2_5V_D
V+1_2V_D
1.2V REG
V+2_5V_D
V+1_8V_D
1.8V REG
V+3_3V_D
V+2_5V_D
V+1_1V_D
DC-DC CONVERTER BD8606FV IC3801
KDD
V+6_5V
DRF_B
AND
PSW1
DRF_
AND
PSW2
PSW2
Vsus_AD
Y*****_PD
SCN**_PD
VOFS_ADJ,YPRST_ADJ,
YKNOFS**_ADJ
DAC
DAC_**
SCAN,YSUS
XKOFS*_ADJ
X****_PD
PD
EXT_PD
PSIZE
D21
D22
SUS_MUTE
ADR_PD_MSK
MASK
Pulse Width
ADRS_PD
O R
AND
SUS_MUTE
ADR_PD1
PD_MUTE
V+3VACT
V+3VACT
RESET
AND
V+3_3V_D
V+10V
D16
OR
V+3V_D
RESET
RST2
RST_SQ
AND
RESETX
MODULE UCOM M30620FCSGP IC3601
V+3_3V_D
V+10V
D15
Pulse Width
SQ_NON
WE_SQ
V+3_3V_D
V+10V
D20
V+3_3V_D
V+10V
D14
V+3_3V_D
V+10V
D19
V+3_3V_D
V+1_2V_D
V+2_5V_D
V+3_3V_D
V+10V
D13
LVDS
LVDS TRANSMITTER PEG478A-K IC3401
LVDS
V+3_3V_D
V+10V
D18
V+3_3V_D
V+10V
D17
V+1_1V_D
V+1_8V_D
V+2_5V_D
V+3_3V_D
V+3_3V_D
Flash Memory IC3302
STOP_SQ
YSUS
SUB-FILD CONV. & XY DRV SEQUENCE PATTERN GEN. PEG383B-K IC3301
GPIO8
UART
XSUS
D26
UART(CS)
DET_CS
VDI
THEATER
EVI_R, G, B
EVI_SYNC
ODI_R, G, B
SQ_SEL
RELAY2
MULTI_OE
UART
V+3VACTV
D12
D11

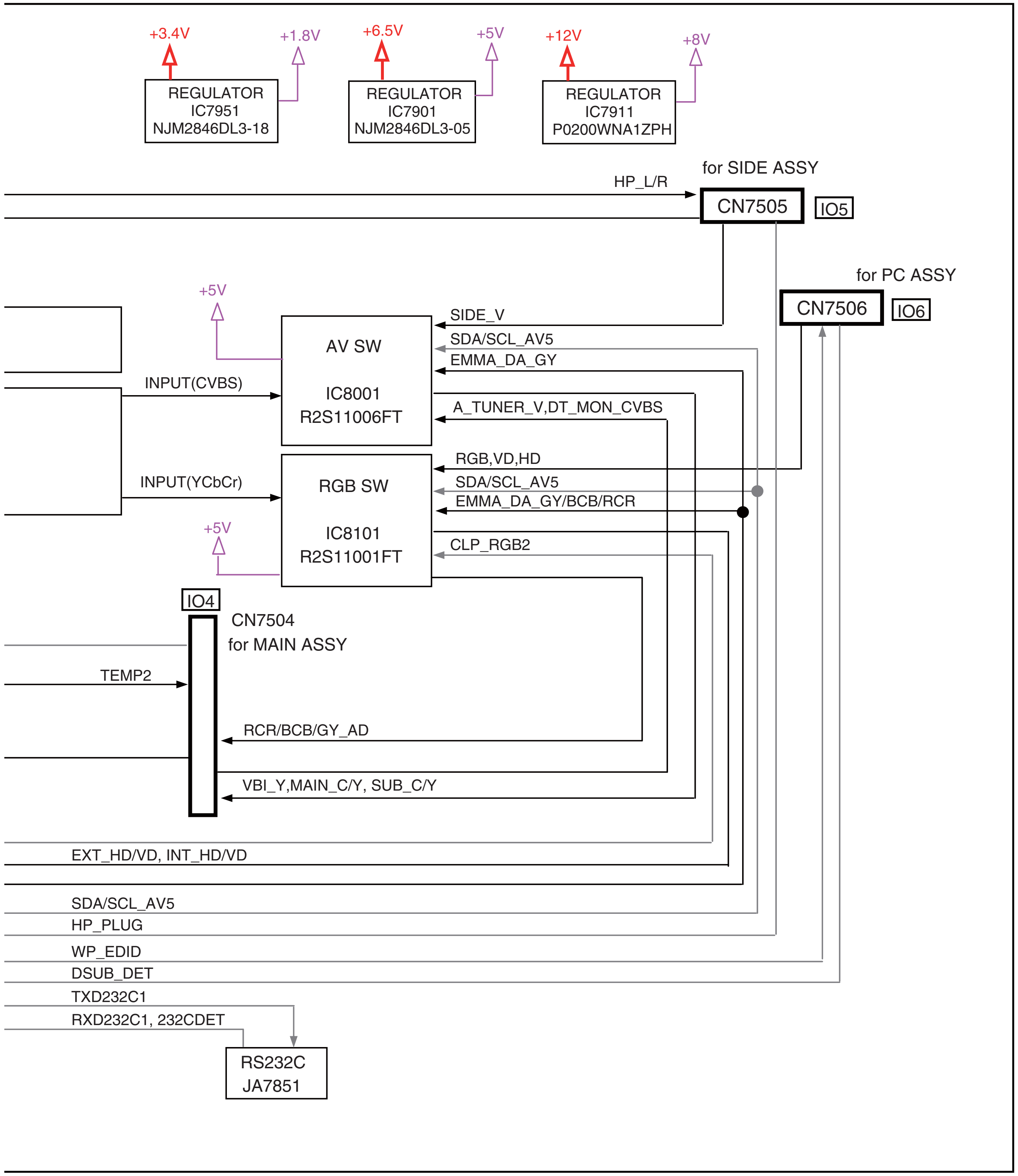
4.11 POWER SUPPLY BLOCK of MAIN ASSY


SW REG CONTROLED BY RELAY
RELAY
V+12V±10%
V+6_5V±10%, -7%
6.5V
IC4305
5V-REG
(V+5V_ANT)
NJM2846DL3_05
V+2_6V_D
V+5V_ANT
IC4402
D/D conv
(V+5_1V_D)
BD8606FV②
V+2_6V_D
5.1V+1.7%-2%
V+5_1V_D
12.0V
IC4303
Variable-REG
(V+FAN_VCC2)
PQ200WNA1ZPH
FAN_CONT2
V+FAN_VCC2
IC4402
D/D conv
(V+2_6V_D)
BD8606FV①
V+1_2V_D
V+2_6V_D
2.6V+2%-1.6%
V+2_6V_D_BCM
V+2_6V_D_BCM_DDR
3ch DD converter
BD8606FV
2.6V
Q4412
FET-SW
(V+2_6V_D2)
RTQ045N03
PSW1_1
V+2_6V_D2
V+2_6V_D2_ARIA
V+2_6V_D2_ARIA_DDR
6.5V
IC4402
D/D conv
(V+1_2V_D)
BD8606FV③
V+6_5V
V+1_2V_D
1.2V±1.3%
V+1_2V_D_BCM
1.2V
Q4415
FET-SW
(V+1_2V_D2)
RTQ045N03
PSW1_1
V+1_2V_D2
V+1_2V_D2_ARIA
5.1V
IC4306
D/D conv
(V+31V_ANT)
BD8903
V+5_1V_D
V+31_5V_ANT
31.5V+4.6%-4.7%
V+31_5V_ANT_T
5.1V
IC4301
OCP-SW
(V+5_1V_D_USB)
R5523N001B
USB_POW_E
V+5_1V_D_USB
5.1V
IC4404
3V-REG
(V+3V_A)
NJM2846DL3_33
V+5_1V_D
V+3_3V_A
3.3V±1%
V+3_3V_A_ADC
3.3V
Q4413
FET-SW
(V+3V_A2)
UPA1917TE-TRB
PSW1_1
3.3V+1%, -1.4%
V+3_3V_A2
5.1V
IC4406
3V-REG
(V+3_3V_A3)
MM1593DF
V+5_1V_D
V+3_3V_A3
3.3V±2%
V+3_3V_A3_COF
V+3_3V_A3_CI
5.1V
IC4401
3V-REG
(V+3_3V_A4)
MM1593DF
V+5_1V_D
V+3_3V_A3_BCM
V+3_3V_A4
3.3V±2%

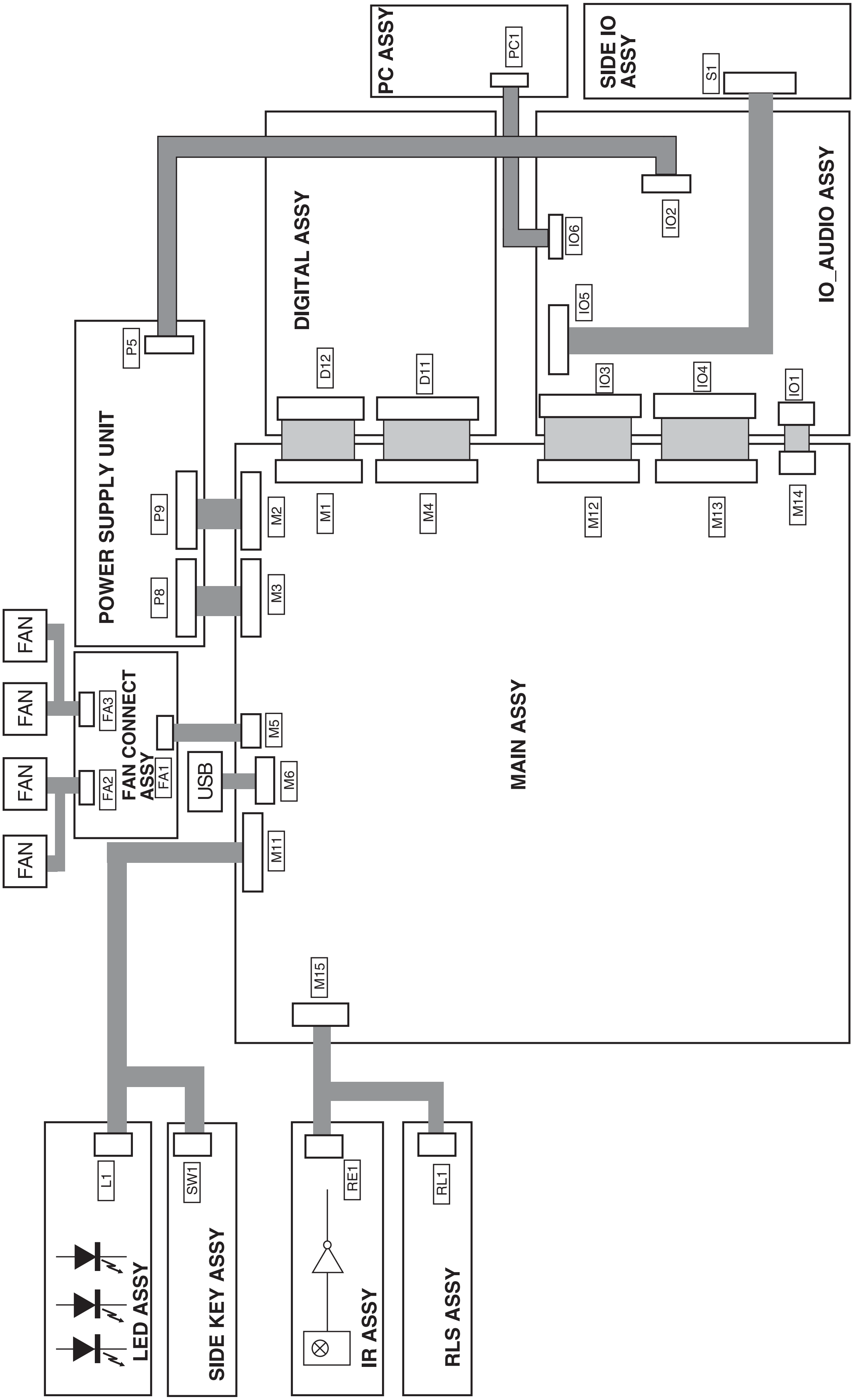

STBY SW REG
V+3_4V_STB±3.5%
V+5_1V_STB±5%
3.4V
V+3_4V_STB_IF
V+5_1V_STB (LED)
V+3_4V_STB (LED)
V+5_1V_STB (SR)
V+3_4V_STB (CEC)
V+5_1V_STB (AV_Link)
3.4V
Q4501
FET-SW
(V+3_4V_ACT)
UPA1917TE-TRB
ACTIVE
V+3_4V_ACT
3.4V+3.5%-4.8%
V+3_4V_ACT_VB
V+3_4V_ACT2 (MOD)
3.4V
Q4509
FET-SW
(V+3_4V_ACT2)
UPA1917TE-TRB
V+1_5V_ACT
V+3_4V_ACT2
3.4V+3.5%-5%
V+3_4V_ACT2_UCOM
3.4V
IC4503
1.8V-REG
(V+1_8V__D)
NJM2846DL3_18
V+5_1V_D
V+1_8V_D
1.8V±1%
3.4V
IC4501
D/D conv
(V+2_5V_ACT)
LTC3407EMS-2①
V+1_5V_ACT
V+2_5V_ACT
2.5V±3%
V+2_5V_ACT_UCOM
Q4507
FET-SW
(V+3_4V_D2)
UPA1917TE-TRB
V+5_1V_D
V+3_4V_D2
V+2_5V_ACT_UCOM_DDR
2ch DD converter
LTC3407ESME-2
Q4506
FET-SW
(V+3_4V_D3)
RSS090P03
PSW1_1
V+3_4V_D3
3.4V+3.5%-4.1%
V+3_4V_D3_VDEC
V+2_5V_ACT_UCOM_VBI
3.4V
3.4V
IC4501
D/D conv
(V+1_5V_ACT)
LTC3407EMS-2②
V+3_3V_ACT
V+1_5V_ACT
1.5V±2.6%
V+1_5V_ACT_UCOM
3.4V
Q4522
FET-SW
(V+3_4V_D4)
RTQ045N03
PSW1_1
V+3_4V_D4
3.4V+3.5%-5.7%
V+3_4V_D4_HDMII
3.4V
V+3_4V_D3_ARIA
3.4V
V+3_4V_D4_HDMIISW
1.5V
Q4524
FET-SW
(V+1_5V_ACT2)
RTQ045N03
V+2_5V_ACT
V+1_5V_ACT2
1.5V±2.6% -2.7%
V+1_5V_ACT2_VBI
3.4V
Q4510
FET-SW
(V+3_4V_D)
RTQ045N03
V+2_6V_D
V+3_4V_D
3.4V+3.5%-4.6%
V+3_4V_D_ADC
3.4V
IC4504
1.8V-REG
(V+1_8V__D2)
NJM2846DL3_18
V+3_3V_D4
V+1_8V_D2
1.8V±1%
V+1_8V_D2_HDMI
1.8V
Q4523
FET-SW
(V+1_8V_A_VDEC)
RTQ045N03
PSW1_1
V+1_8V_D3
1.8V±1% -1.4%
V+1_8V_D3_VDEC

4.12 IO_AUDIO ASSY


IO1
CN7501
+6.5
+3.4
+12V
IO2
CN7502
+17V
+17V
+12V
REGULATOR
IC7961
NJM78M12DL1A
+3.4V
+1.8V
SIDE_L/R
PWM
+17V
MSP IC
IC8201
MSP5651M
OPT_OUT
OPTICAL OUT
OUTPUT(AUDIO)
SUB WOOFER OUT
AUDIO OUT
DIGITAL AMP IC
IC8401
TAS5122DCA
INPUT(AUDIO)
INPUT1
INPUT2
INPUT4(HDMI L/R)
INPUT5(HDMI L/R)
PC AUDIO
LPF
DC
DETECT
BLOCK
AC_AM_MUTE
TEMPERATURE
R_OUT+
R_OUT-
L_OUT-
L_OUT+
AIR_SIF
IO3
AC_HP_MUTE
AC_A_MUTE
R OUT
L OUT
SP TERMINAL
SDA_AV ,SCL_AV
RST_MSP
SPDIF_HDMI,SPDIF_DTV,I2S_BCLK_DTV,I2S_LRCLK_DTV,I2S_SDATA_DTV
OTW
A_NG_B
SR_OUT
JA7871
SR_OUT
CN7503
for MAIN ASSY
IO_AUDIO ASSY


+3.4V
+1.8V
REGULATOR
IC7951
NJM2846DL3-18
+6.5V
+5V
REGULATOR
IC7901
NJM2846DL3-05
+12V
+8V
REGULATOR
IC7911
P0200WNA1ZPH
for SIDE ASSY
HP_L/R
CN7505
IO5
for PC ASSY
CN7506
IO6
+5V
AV SW
IC8001
R2S11006FT
SIDE_V
SDA/SCL_AV5
EMMA_DA_GY
INPUT(CVBS)
A_TUNER_V,DT_MON_CVBS
RGB SW
IC8101
R2S11001FT
INPUT(YCbCr)
RGB,VD,HD
SDA/SCL_AV5
EMMA_DA_GY/BCB/RCR
+5V
CLP_RGB2
IO4
CN7504
for MAIN ASSY
TEMP2
RCR/BCB/GY_AD
VBI_Y,MAIN_C/Y, SUB_C/Y
EXT_HD/VD, INT_HD/VD
SDA/SCL_AV5
HP_PLUG
WP_EDID
DSUB_DET
TXD232C1
RXD232C1, 232CDET
RS232C
JA7851

4.13 LED and IR ASSYS

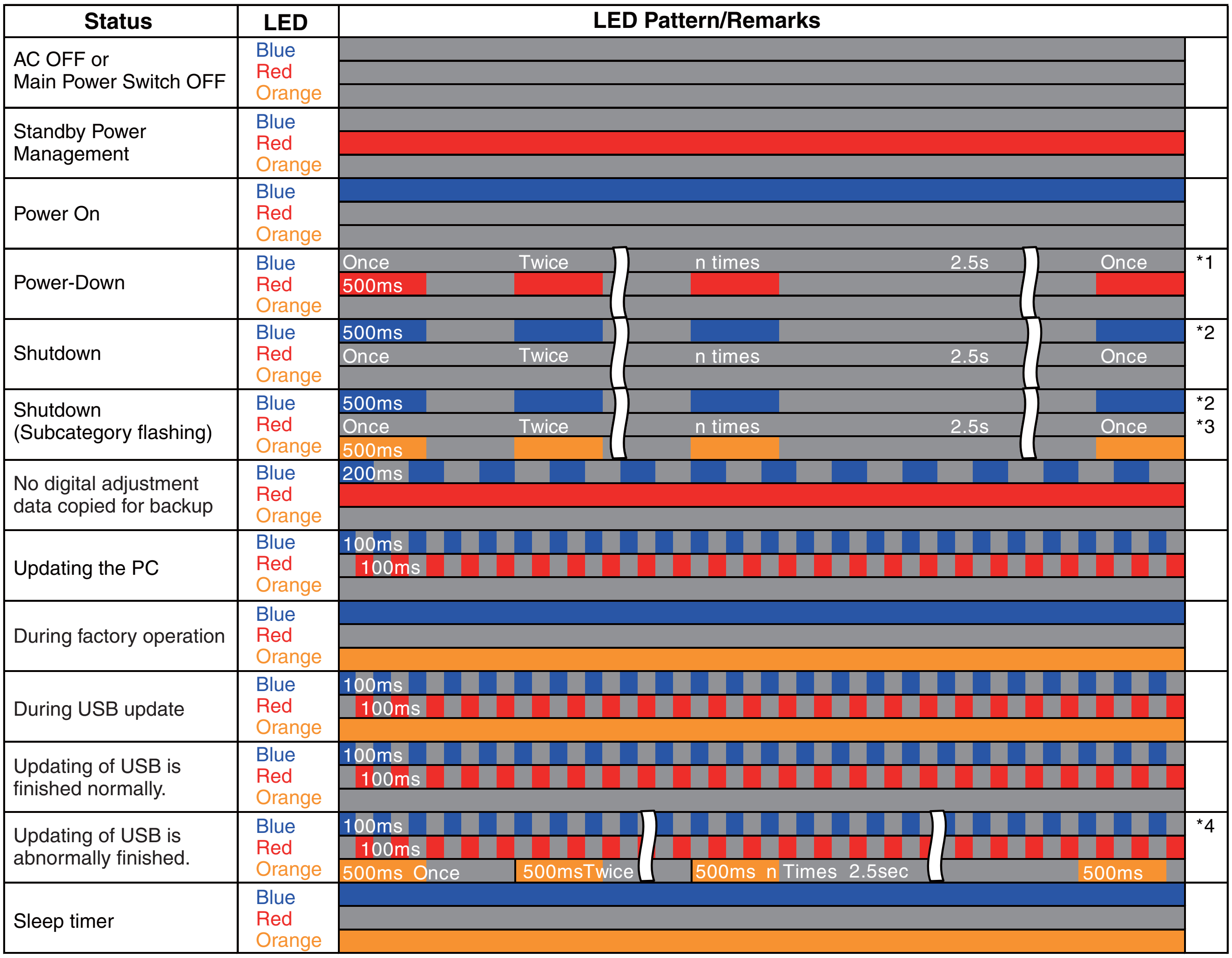

PC ASSY
PC1
SIDE IO ASSY
S1
DIGITAL ASSY
IO_AUDIO ASSY
IO2
IO6
IO5
P5
D12
D11
IO3
IO4
IO1
POWER SUPPLY UNIT
P9
P8
M2
M3
M1
M4
M12
M13
M14
FAN
FAN
FAN
FAN
FAN CONNECT ASSY
FA3
FA2
FA1
USB
M5
M6
M11
MAIN ASSY
M15
L1
SW1
RE1
RL1
LED ASSY
SIDE KEY ASSY
IR ASSY
RLS ASSY

5. DIAGNOSIS

5.1 POWER SUPPLY OPERATION

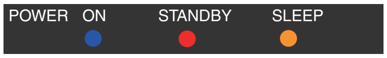
[1] LED DISPLAY INFORMATION

■ LED Pattern

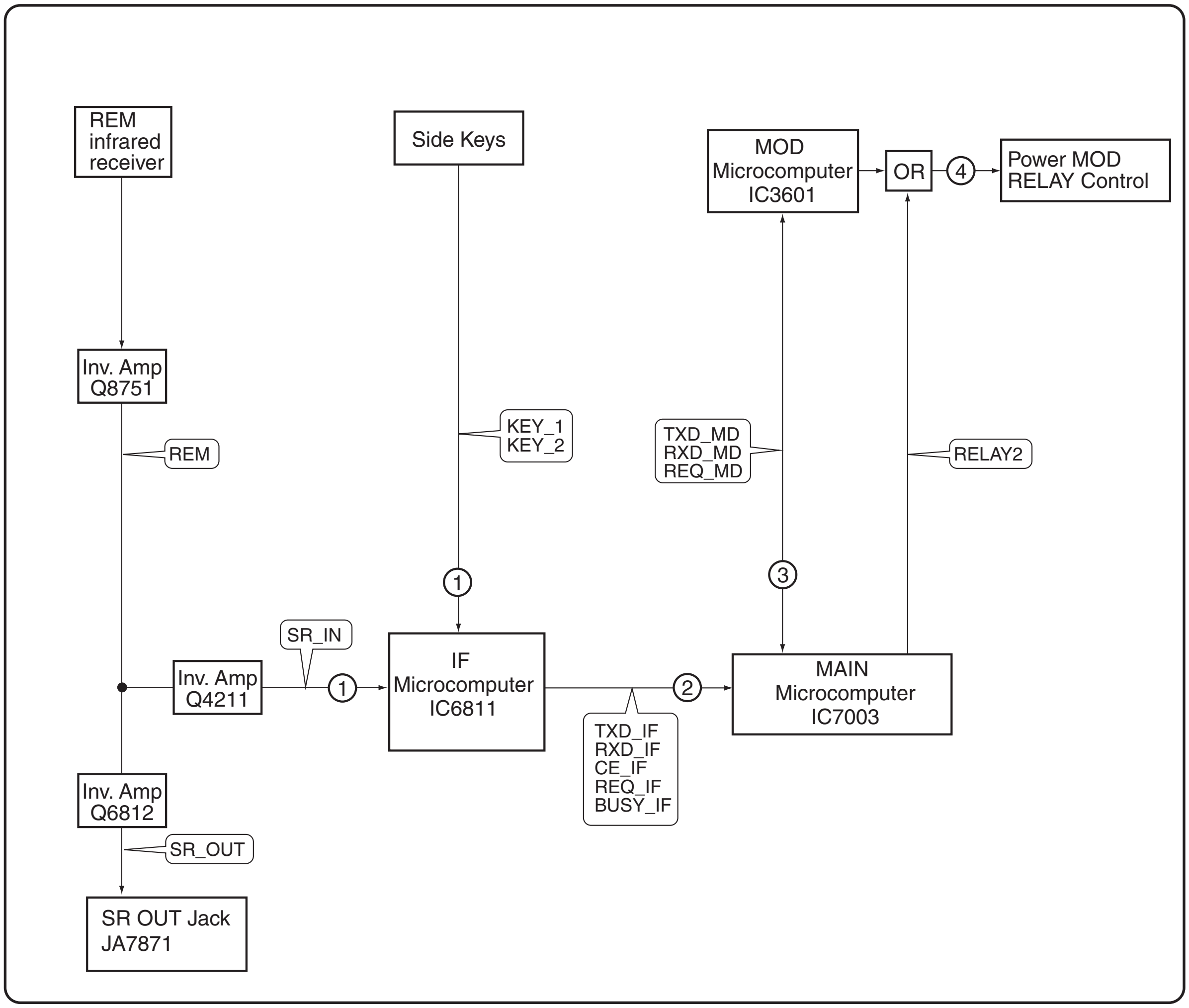


Status	LED	LED Pattern/Remarks	
AC OFF or Main Power Switch OFF	Blue		
	Red		
	Orange		
Standby Power Management	Blue		
	Red		
	Orange		
Power On	Blue		
	Red		
	Orange		
Power-Down	Blue	Once Twice n times 2.5s Once	*1
	Red	500ms	
	Orange		
Shutdown	Blue	500ms	*2
	Red	Once Twice n times 2.5s Once	
	Orange		
Shutdown (Subcategory flashing)	Blue	500ms	*2
	Red	Once Twice n times 2.5s Once	*3
	Orange	500ms	
No digital adjustment data copied for backup	Blue	200ms	
	Red		
	Orange		
Updating the PC	Blue	100ms	
	Red	100ms	
	Orange		
During factory operation	Blue		
	Red		
	Orange		
During USB update	Blue	100ms	
	Red	100ms	
	Orange		
Updating of USB is finished normally.	Blue	100ms	
	Red	100ms	
	Orange		
Updating of USB is abnormally finished.	Blue	100ms	*4
	Red	100ms	
	Orange	500ms Once 500msTwice 500ms n Times 2.5sec 500ms	
Sleep timer	Blue		
	Red		
	Orange		

*1: Notify upon the power-down content by Red LED flashing number of times.
*2: Notify upon the shutdown content by Blue LED flashing number of times.
*3: Notify upon the subcategory number by Orange LED flashing number of times.
*4: Notify upon the abnormal state by Orange LED flashing number of times.



[2] POWER ON SEQUENCE


REM
infrared
receiver
Side Keys
MOD
Microcomputer
IC3601
OR
④
Power MOD
RELAY Control
Inv. Amp
Q8751
REM
KEY_1
KEY_2
TXD_MD
RXD_MD
REQ_MD
RELAY2
①
③
SR_IN
Inv. Amp
Q4211
①
IF
Microcomputer
IC6811
②
MAIN
Microcomputer
IC7003
TXD_IF
RXD_IF
CE_IF
REQ_IF
BUSY_IF
Inv. Amp
Q6812
SR_OUT
SR OUT Jack
JA7871

① : The remote control (or KEY) signal is input to the IF microcomputer.
② : The IF microcomputer sends the operation data of the remote control unit (or KEY) to the main microcomputer.
③ : The main microcomputer issues a startup command (PON) to the MOD microcomputer.
④ : The relay is controlled with logical OR interpretation of control signals by the main microcomputer and module (MOD) microcomputer.

[3] DETAILS OF POWER ON SEQUENCE

AC-OFF Main Power OFF, Passive Standby

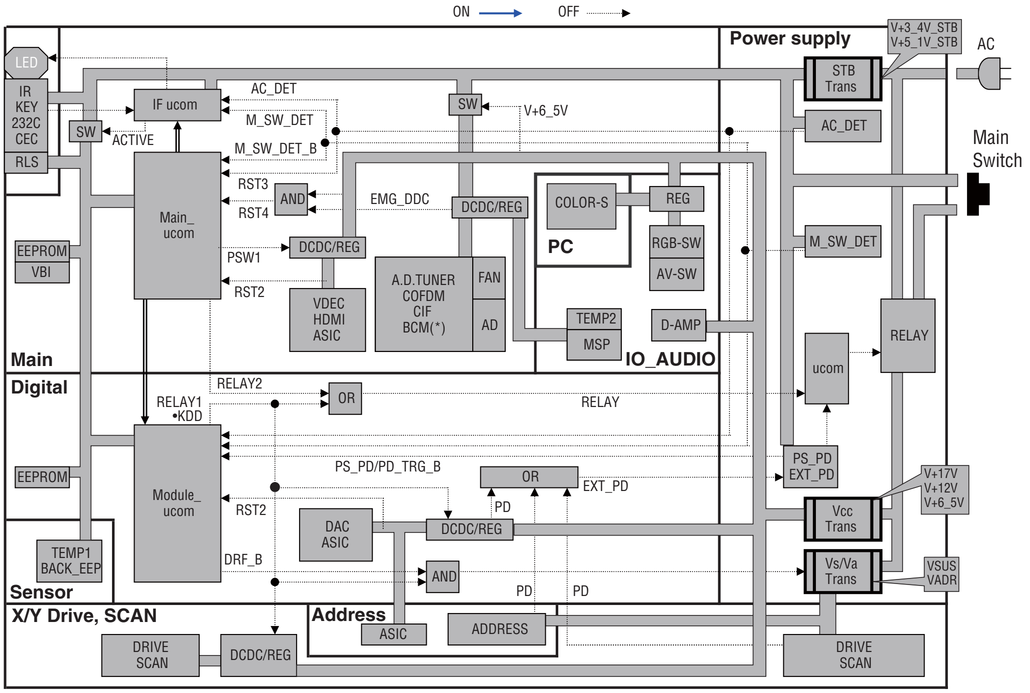
Front LED: OFF

Microcomputer
output port setting

IF: ACTIVE	OFF
Main: RELAY2	OFF
Main: PSW1	OFF
Module: RELAY1•KDD	OFF
Module: DRF_B	OFF

Microcomputer
input port state

Main: RST4	OFF
Main: RST2	OFF
Module: RST2	OFF


ON
OFF
Power supply
V+3_4V_STB
V+5_1V_STB
AC
STB Trans
AC_DET
Main Switch
M_SW_DET
RELAY
ucom
PS_PD
EXT_PD
V+17V
V+12V
V+6_5V
Vcc Trans
Vs/Va Trans
VSUS
VADR
LED
IR
KEY
232C
CEC
RLS
SW
ACTIVE
IF ucom
AC_DET
M_SW_DET
M_SW_DET_B
SW
V+6_5V
RST3
RST4
AND
EMG_DDC
DCDC/REG
COLOR-S
REG
PC
RGB-SW
AV-SW
Main_ ucom
PSW1
DCDC/REG
RST2
EEPROM
VBI
VDEC
HDMI
ASIC
A.D.TUNER
COFDM
CIF
BCM(*)
FAN
AD
TEMP2
MSP
D-AMP
IO_AUDIO
Main
Digital
RELAY2
OR
RELAY
RELAY1 •KDD
EEPROM
PS_PD/PD_TRG_B
OR
EXT_PD
PD
Module_ ucom
RST2
DAC ASIC
DCDC/REG
DRF_B
AND
PD
PD
TEMP1
BACK_EEP
Sensor
X/Y Drive, SCAN
Address
ASIC
ADDRESS
DRIVE SCAN
DCDC/REG
DRIVE SCAN

All devices are not electrified.

AC-ON Main Power OFF, Passive Standby

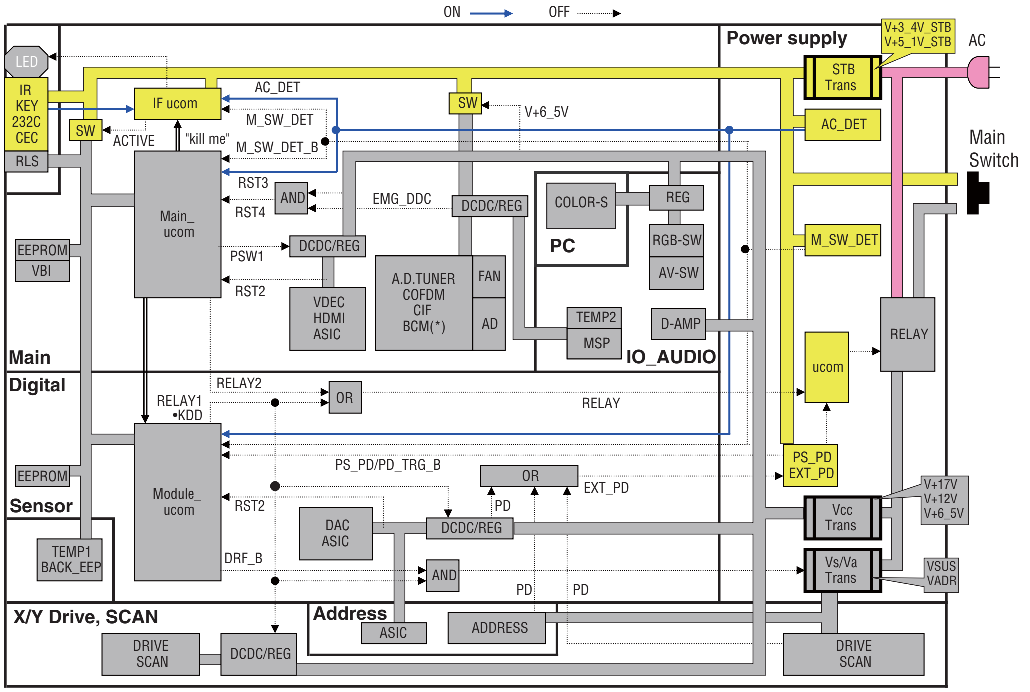
Front LED: OFF

Microcomputer
output port setting

IF: ACTIVE	OFF
Main: RELAY2	OFF
Main: PSW1	OFF
Module: RELAY1•KDD	OFF
Module: DRF_B	OFF

Microcomputer
input port state

Main: RST4	OFF
Main: RST2	OFF
Module: RST2	OFF


ON
OFF
Power supply
V+3_4V_STB
V+5_1V_STB
AC
STB Trans
AC_DET
Main Switch
M_SW_DET
RELAY
ucom
PS_PD
EXT_PD
V+17V
V+12V
V+6_5V
Vcc Trans
Vs/Va Trans
VSUS
VADR
LED
IR
KEY
232C
CEC
RLS
SW
ACTIVE
"kill me"
IF ucom
AC_DET
M_SW_DET
M_SW_DET_B
SW
V+6_5V
RST3
RST4
AND
EMG_DDC
DCDC/REG
COLOR-S
REG
PC
RGB-SW
AV-SW
Main_ ucom
PSW1
DCDC/REG
RST2
EEPROM
VBI
VDEC
HDMI
ASIC
A.D.TUNER
COFDM
CIF
BCM(*)
FAN
AD
TEMP2
MSP
D-AMP
IO_AUDIO
Main
Digital
RELAY2
OR
RELAY
RELAY1 •KDD
EEPROM
PS_PD/PD_TRG_B
OR
EXT_PD
PD
Module_ ucom
RST2
DAC ASIC
DCDC/REG
DRF_B
AND
PD
PD
Sensor
TEMP1
BACK_EEP
X/Y Drive, SCAN
Address
ASIC
ADDRESS
DRIVE SCAN
DCDC/REG
DRIVE SCAN

Only the periphery of the IF microcomputer are electrified.
The user operation is invalid due to Main Switch off.

AC-ON Main Power OFF, Active Standby

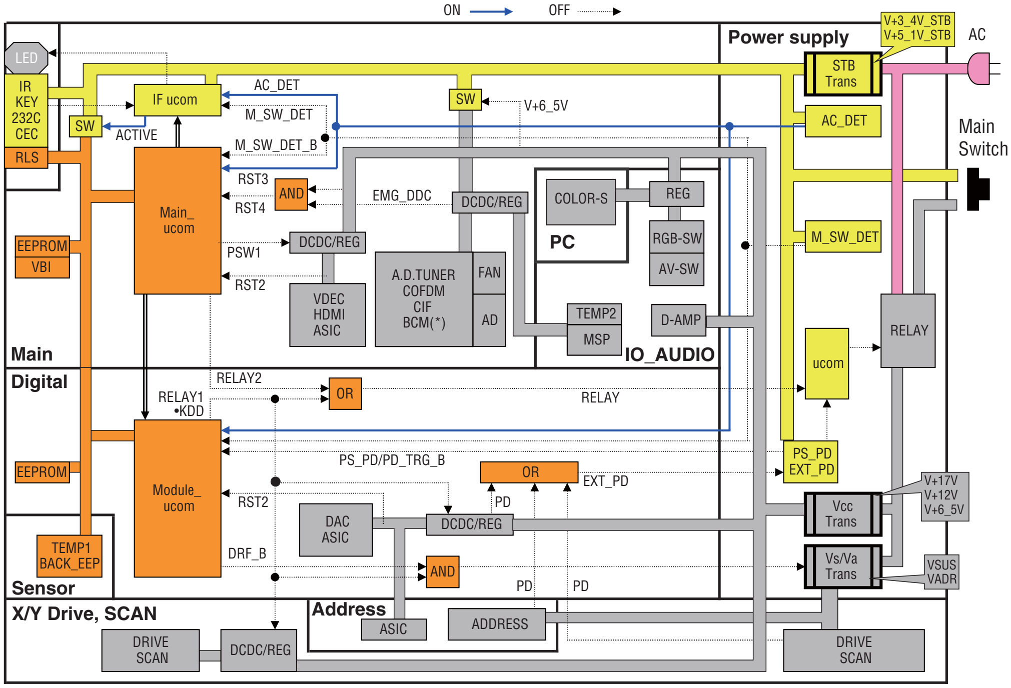
Front LED: OFF

Microcomputer
output port setting

IF: ACTIVE	ON
Main: RELAY2	OFF
Main: PSW1	OFF
Module: RELAY1•KDD	OFF
Module: DRF_B	OFF

Microcomputer
input port state

Main: RST4	OFF
Main: RST2	OFF
Module: RST2	OFF


ON
OFF
Power supply
V+3_4V_STB
V+5_1V_STB
AC
STB Trans
AC_DET
Main Switch
M_SW_DET
RELAY
ucom
PS_PD
EXT_PD
Vcc Trans
V+17V
V+12V
V+6_5V
Vs/Va Trans
VSUS
VADR
LED
IR
KEY
232C
CEC
RLS
SW
ACTIVE
IF ucom
AC_DET
M_SW_DET
M_SW_DET_B
SW
V+6_5V
Main_ucom
RST3
RST4
AND
EMG_DDC
DCDC/REG
COLOR-S
REG
PC
RGB-SW
AV-SW
PSW1
DCDC/REG
RST2
VDEC
HDMI
ASIC
A.D.TUNER
COFDM
CIF
BCM(*)
FAN
AD
TEMP2
MSP
D-AMP
IO_AUDIO
EEPROM
VBI
Main
Digital
RELAY2
RELAY1 •KDD
OR
RELAY
EEPROM
Module_ucom
PS_PD/PD_TRG_B
OR
EXT_PD
RST2
PD
DAC
ASIC
DCDC/REG
TEMP1
BACK_EEP
DRF_B
AND
PD
PD
Sensor
X/Y Drive, SCAN
DRIVE SCAN
DCDC/REG
Address
ASIC
ADDRESS
DRIVE SCAN

Periphery of the IF, Main and Module microcomputers are operated.
The user operation is invalid due to Main Switch off.

AC-ON Main Power ON, Passive Standby

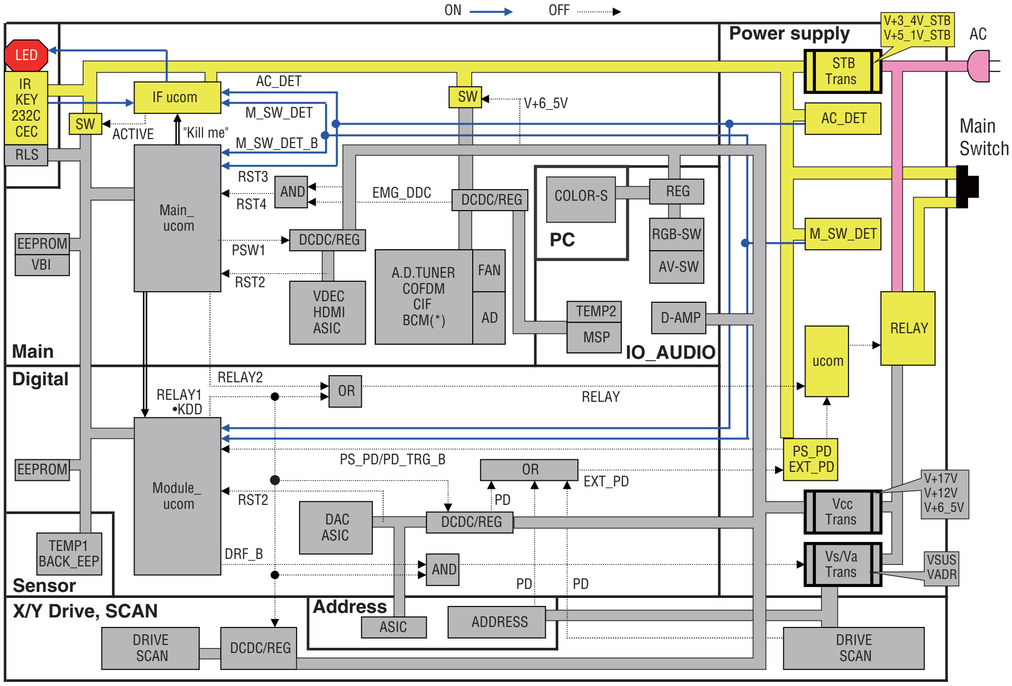
Front LED: RED

Microcomputer
output port setting

IF: ACTIVE	OFF
Main: RELAY2	OFF
Main: PSW1	OFF
Module: RELAY1•KDD	OFF
Module: DRF_B	OFF

Microcomputer
input port state

Main: RST4	OFF
Main: RST2	OFF
Module: RST2	OFF


ON
OFF
Power supply
V+3_4V_STB
V+5_1V_STB
AC
STB Trans
AC_DET
Main Switch
M_SW_DET
RELAY
ucom
PS_PD
EXT_PD
Vcc Trans
V+17V
V+12V
V+6_5V
Vs/Va Trans
VSUS
VADR
LED
IR
KEY
232C
CEC
RLS
SW
ACTIVE
"Kill me"
IF ucom
AC_DET
M_SW_DET
M_SW_DET_B
SW
V+6_5V
Main_ucom
RST3
RST4
AND
EMG_DDC
DCDC/REG
COLOR-S
REG
PC
RGB-SW
AV-SW
PSW1
DCDC/REG
RST2
VDEC
HDMI
ASIC
A.D.TUNER
COFDM
CIF
BCM(*)
FAN
AD
TEMP2
MSP
D-AMP
IO_AUDIO
EEPROM
VBI
Main
Digital
RELAY2
RELAY1 •KDD
OR
RELAY
EEPROM
Module_ucom
PS_PD/PD_TRG_B
OR
EXT_PD
RST2
PD
DAC
ASIC
DCDC/REG
TEMP1
BACK_EEP
DRF_B
AND
PD
PD
Sensor
X/Y Drive, SCAN
DRIVE SCAN
DCDC/REG
Address
ASIC
ADDRESS
DRIVE SCAN

Only the periphery of the IF microcomputer is electrified.
The user operation is valid.

AC-ON Main Power ON, Active Standby

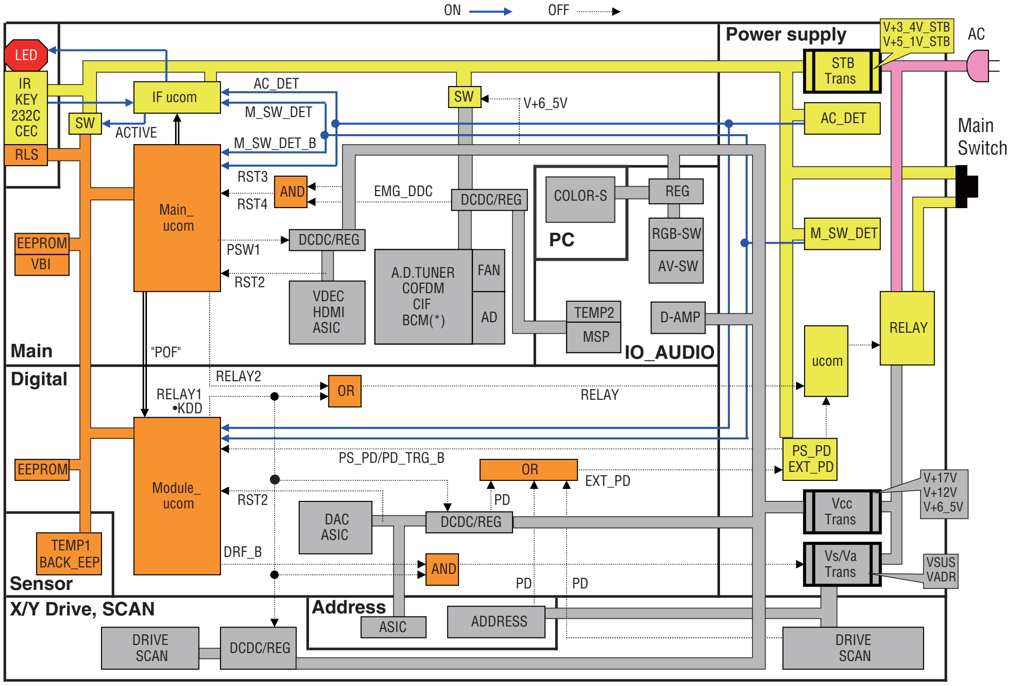
Front LED: RED

Microcomputer
output port setting

IF: ACTIVE	ON
Main: RELAY2	OFF
Main: PSW1	OFF
Module: RELAY1•KDD	OFF
Module: DRF_B	OFF

Microcomputer
input port state

Main: RST4	OFF
Main: RST2	OFF
Module: RST2	OFF


ON
OFF
Power supply
V+3_4V_STB
V+5_1V_STB
AC
STB Trans
LED
IR
KEY
232C
CEC
RLS
SW
IF ucom
ACTIVE
AC_DET
M_SW_DET
M_SW_DET_B
SW
V+6_5V
AC_DET
Main Switch
Main_ucom
RST3
RST4
AND
EMG_DDC
DCDC/REG
COLOR-S
REG
PC
RGB-SW
AV-SW
M_SW_DET
EEPROM
VBI
PSW1
DCDC/REG
RST2
VDEC HDMI ASIC
A.D.TUNER COFDM CIF BCM(*)
FAN
AD
TEMP2
MSP
D-AMP
RELAY
IO_AUDIO
ucom
Main
"POF"
Digital
RELAY2
OR
RELAY
RELAY1 •KDD
EEPROM
PS_PD/PD_TRG_B
OR
PS_PD EXT_PD
EXT_PD
Module_ucom
RST2
PD
DAC ASIC
DCDC/REG
Vcc Trans
V+17V V+12V V+6_5V
TEMP1 BACK_EEP
DRF_B
AND
Vs/Va Trans
VSUS VADR
PD
PD
Sensor
X/Y Drive, SCAN
Address
ASIC
ADDRESS
DRIVE SCAN
DCDC/REG
DRIVE SCAN

Periphery of the IF, Main and Module microcomputers are operated.
The user operation is valid.

AC-ON Main Power ON, Function Standby

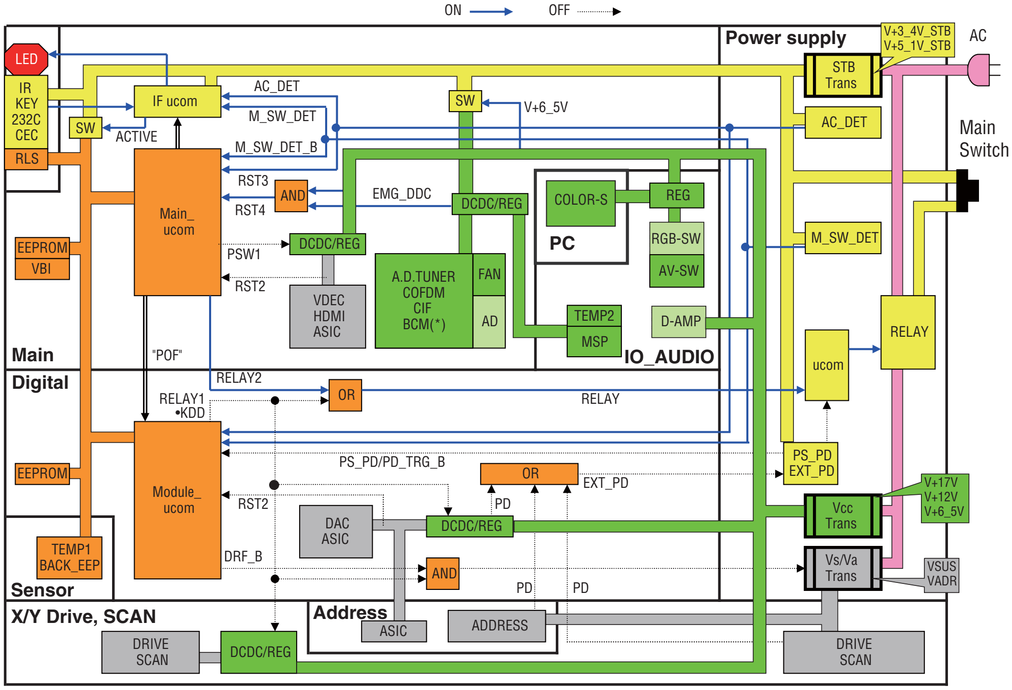
Front LED: RED

Microcomputer
output port setting

IF: ACTIVE	ON
Main: RELAY2	ON
Main: PSW1	OFF
Module: RELAY1•KDD	OFF
Module: DRF_B	OFF

Microcomputer
input port state

Main: RST4	ON
Main: RST2	OFF
Module: RST2	OFF


ON
OFF
Power supply
V+3_4V_STB
V+5_1V_STB
AC
STB Trans
LED
IR
KEY
232C
CEC
RLS
SW
IF ucom
ACTIVE
AC_DET
M_SW_DET
M_SW_DET_B
SW
V+6_5V
AC_DET
Main Switch
Main_ucom
RST3
RST4
AND
EMG_DDC
DCDC/REG
COLOR-S
REG
PC
RGB-SW
AV-SW
M_SW_DET
EEPROM
VBI
PSW1
DCDC/REG
RST2
VDEC HDMI ASIC
A.D.TUNER COFDM CIF BCM(*)
FAN
AD
TEMP2
MSP
D-AMP
RELAY
IO_AUDIO
ucom
Main
"POF"
Digital
RELAY2
OR
RELAY
RELAY1 •KDD
EEPROM
PS_PD/PD_TRG_B
OR
PS_PD EXT_PD
EXT_PD
Module_ucom
RST2
PD
DAC ASIC
DCDC/REG
Vcc Trans
V+17V V+12V V+6_5V
TEMP1 BACK_EEP
DRF_B
AND
Vs/Va Trans
VSUS VADR
PD
PD
Sensor
X/Y Drive, SCAN
Address
ASIC
ADDRESS
DRIVE SCAN
DCDC/REG
DRIVE SCAN

Standby power device and some Vcc power devices operate.
The user operation is valid.
RGB-SW/AD/D-AMP/MAP are electrified, but uses the power-saving mode function of the IC.

AC-ON Main Power ON, PDP Screen ON

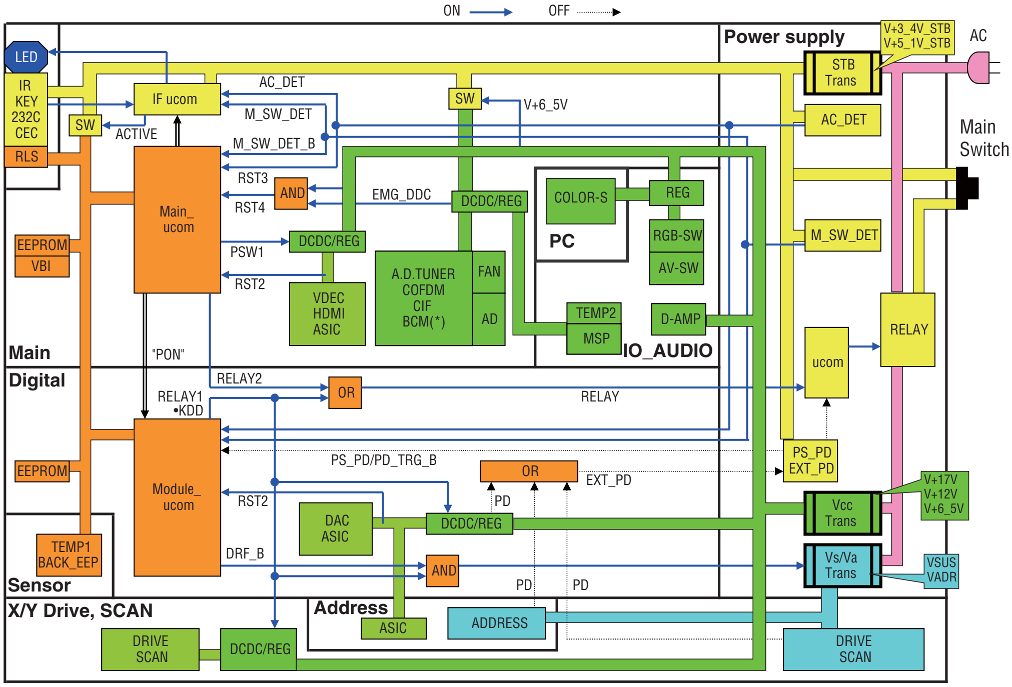
Front LED: BLUE

Microcomputer
output port setting

IF: ACTIVE	ON
Main: RELAY2	ON
Main: PSW1	ON
Module: RELAY1•KDD	ON
Module: DRF_B	ON

Microcomputer
input port state

Main: RST4	ON
Main: RST2	ON
Module: RST2	ON

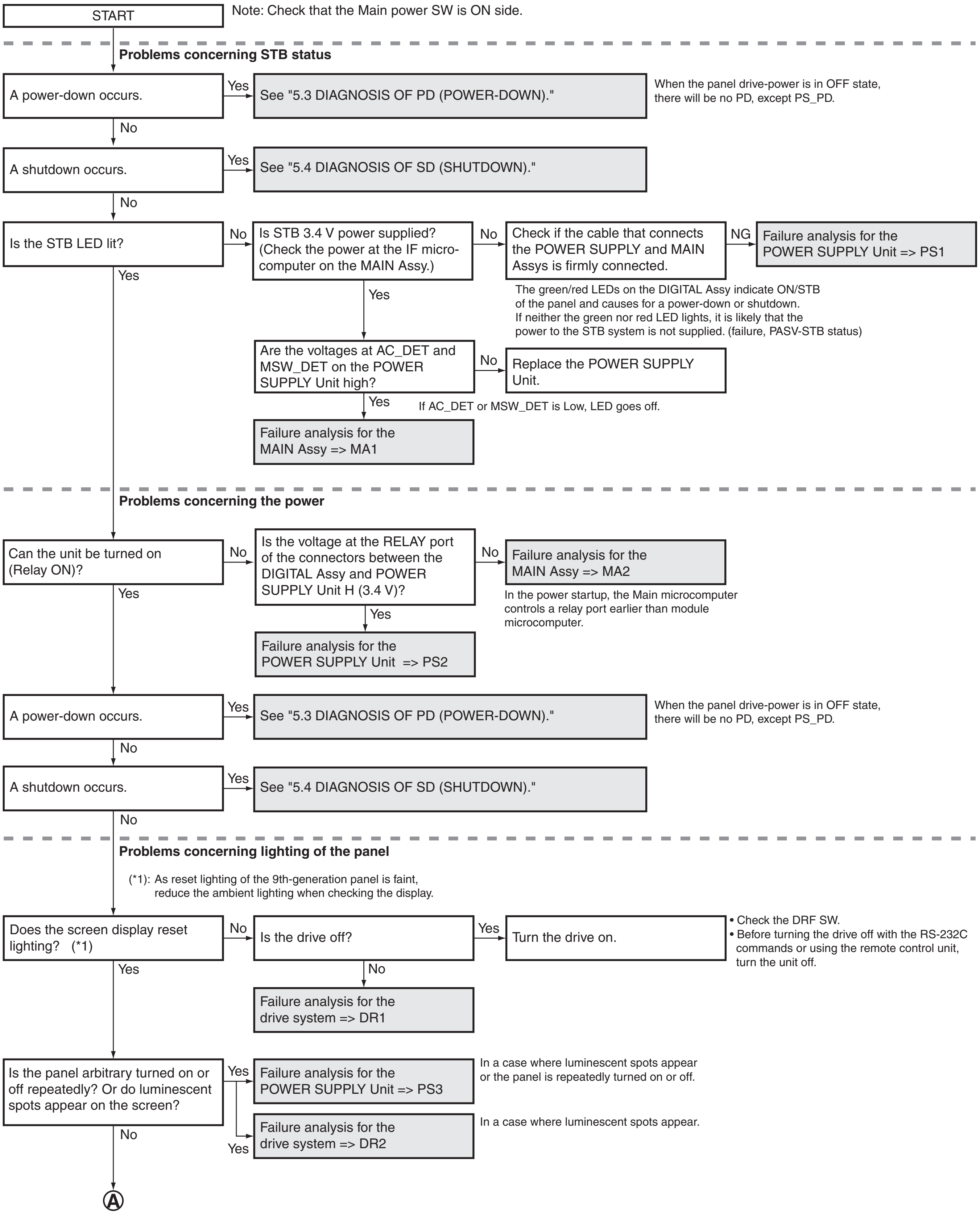

ON
OFF
LED
IR
KEY
232C
CEC
RLS
SW
ACTIVE
IF ucom
AC_DET
M_SW_DET
M_SW_DET_B
RST3
RST4
AND
EMG_DDC
Main_
ucom
PSW1
RST2
EEPROM
VBI
DCDC/REG
VDEC
HDMI
ASIC
A.D.TUNER
COFDM
CIF
BCM(*)
FAN
AD
SW
V+6_5V
COLOR-S
REG
RGB-SW
AV-SW
PC
TEMP2
MSP
D-AMP
IO_AUDIO
Main
"PON"
Digital
RELAY2
RELAY1
•KDD
OR
RELAY
EEPROM
PS_PD/PD_TRG_B
OR
EXT_PD
Module_
ucom
RST2
PD
DAC
ASIC
DCDC/REG
DRF_B
AND
PD
PD
TEMP1
BACK_EEP
Sensor
X/Y Drive, SCAN
DRIVE
SCAN
DCDC/REG
Address
ASIC
ADDRESS
Power supply
V+3_4V_STB
V+5_1V_STB
AC
STB
Trans
AC_DET
Main
Switch
M_SW_DET
RELAY
ucom
PS_PD
EXT_PD
Vcc
Trans
V+17V
V+12V
V+6_5V
Vs/Va
Trans
VSUS
VADR
DRIVE
SCAN

All devices are operated.

5.2 DIAGNOSIS FLOWCHART OF FAILURE ANALYSIS

[1] WHOLE UNIT

Flowchart of Failure Analysis for The Whole Unit


START
Problems concerning STB status
A power-down occurs.
Yes
See "5.3 DIAGNOSIS OF PD (POWER-DOWN)."
No
A shutdown occurs.
Yes
See "5.4 DIAGNOSIS OF SD (SHUTDOWN)."
No
Is the STB LED lit?
No
Is STB 3.4 V power supplied? (Check the power at the IF micro-computer on the MAIN Assy.)
No
Check if the cable that connects the POWER SUPPLY and MAIN Assys is firmly connected.
NG
Failure analysis for the POWER SUPPLY Unit => PS1
Yes
Are the voltages at AC_DET and MSW_DET on the POWER SUPPLY Unit high?
No
Replace the POWER SUPPLY Unit.
Yes
Failure analysis for the MAIN Assy => MA1
Yes
Problems concerning the power
Can the unit be turned on (Relay ON)?
No
Is the voltage at the RELAY port of the connectors between the DIGITAL Assy and POWER SUPPLY Unit H (3.4 V)?
No
Failure analysis for the MAIN Assy => MA2
Yes
Failure analysis for the POWER SUPPLY Unit => PS2
Yes
A power-down occurs.
Yes
See "5.3 DIAGNOSIS OF PD (POWER-DOWN)."
No
A shutdown occurs.
Yes
See "5.4 DIAGNOSIS OF SD (SHUTDOWN)."
No
Problems concerning lighting of the panel
Does the screen display reset lighting? (*1)
No
Is the drive off?
Yes
Turn the drive on.
No
Failure analysis for the drive system => DR1
Yes
Is the panel arbitrary turned on or off repeatedly? Or do luminescent spots appear on the screen?
Yes
Failure analysis for the POWER SUPPLY Unit => PS3
Yes
Failure analysis for the drive system => DR2
No
Ⓐ

Note: Check that the Main power SW is ON side.

When the panel drive-power is in OFF state, there will be no PD, except PS_PD.

The green/red LEDs on the DIGITAL Assy indicate ON/STB of the panel and causes for a power-down or shutdown. If neither the green nor red LED lights, it is likely that the power to the STB system is not supplied. (failure, PASV-STB status)

If AC_DET or MSW_DET is Low, LED goes off.

In the power startup, the Main microcomputer controls a relay port earlier than module microcomputer.

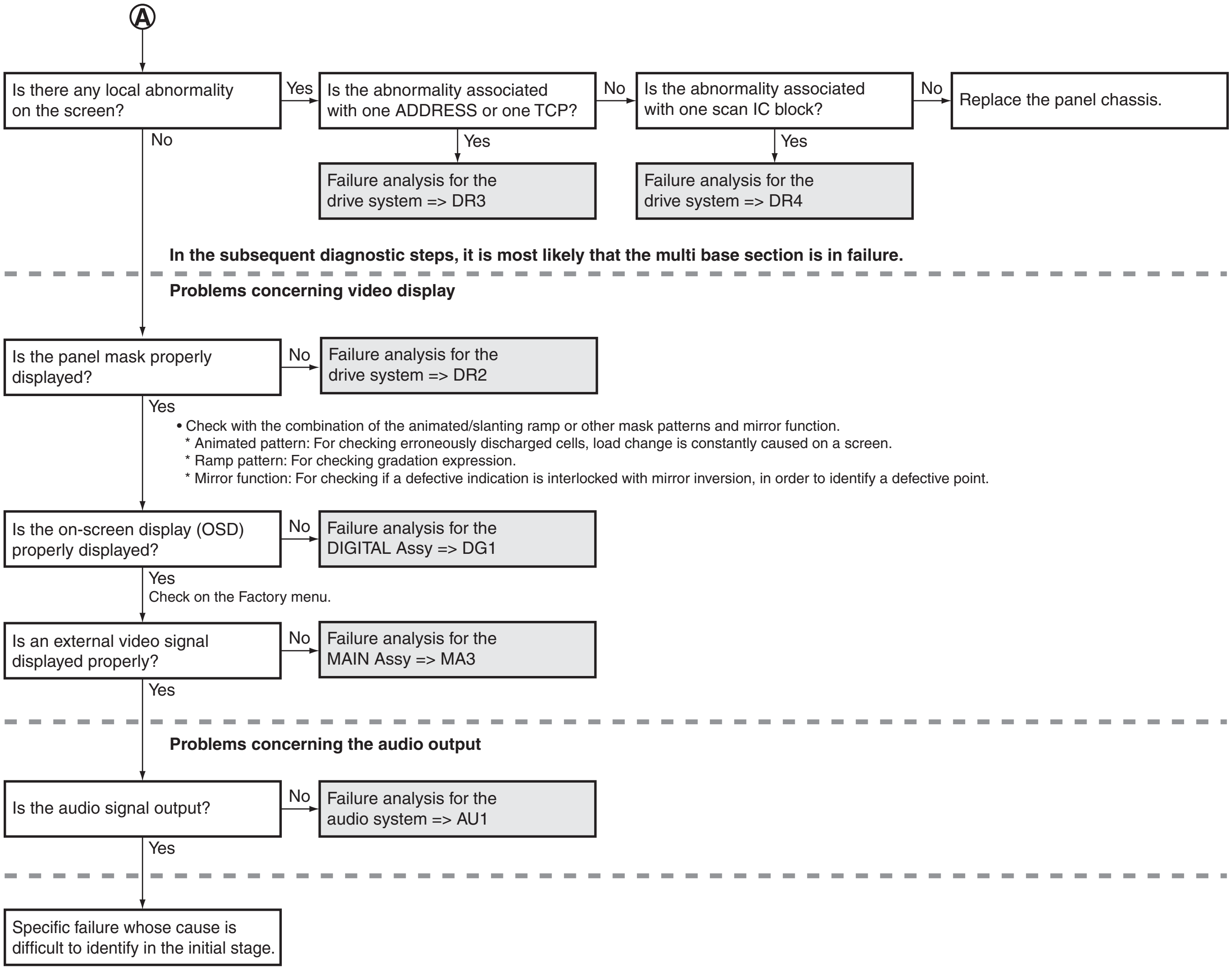
When the panel drive-power is in OFF state, there will be no PD, except PS_PD.

(*1): As reset lighting of the 9th-generation panel is faint, reduce the ambient lighting when checking the display.

- Check the DRF SW.
- Before turning the drive off with the RS-232C commands or using the remote control unit, turn the unit off.

In a case where luminescent spots appear or the panel is repeatedly turned on or off.

In a case where luminescent spots appear.


A
Is there any local abnormality on the screen?
Yes
Is the abnormality associated with one ADDRESS or one TCP?
No
Is the abnormality associated with one scan IC block?
No
Replace the panel chassis.
Yes
Failure analysis for the drive system => DR3
Yes
Failure analysis for the drive system => DR4
No
Is the panel mask properly displayed?
No
Failure analysis for the drive system => DR2
Yes
Is the on-screen display (OSD) properly displayed?
No
Failure analysis for the DIGITAL Assy => DG1
Yes
Is an external video signal displayed properly?
No
Failure analysis for the MAIN Assy => MA3
Yes
Is the audio signal output?
No
Failure analysis for the audio system => AU1
Yes
Specific failure whose cause is difficult to identify in the initial stage.

In the subsequent diagnostic steps, it is most likely that the multi base section is in failure.

Problems concerning video display

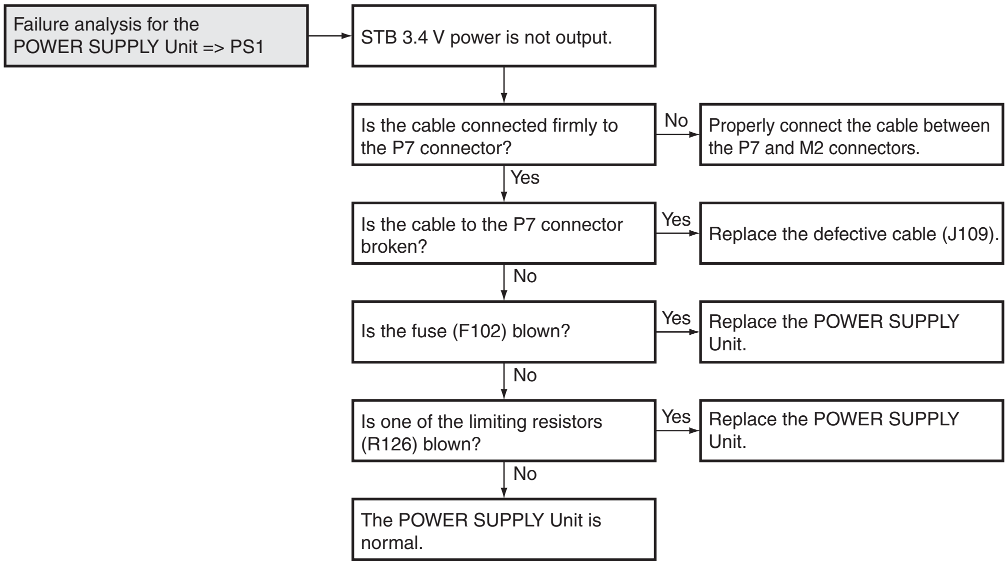
- Check with the combination of the animated/slanting ramp or other mask patterns and mirror function.
  - * Animated pattern: For checking erroneously discharged cells, load change is constantly caused on a screen.
  - * Ramp pattern: For checking gradation expression.
  - * Mirror function: For checking if a defective indication is interlocked with mirror inversion, in order to identify a defective point.

Check on the Factory menu.

Problems concerning the audio output

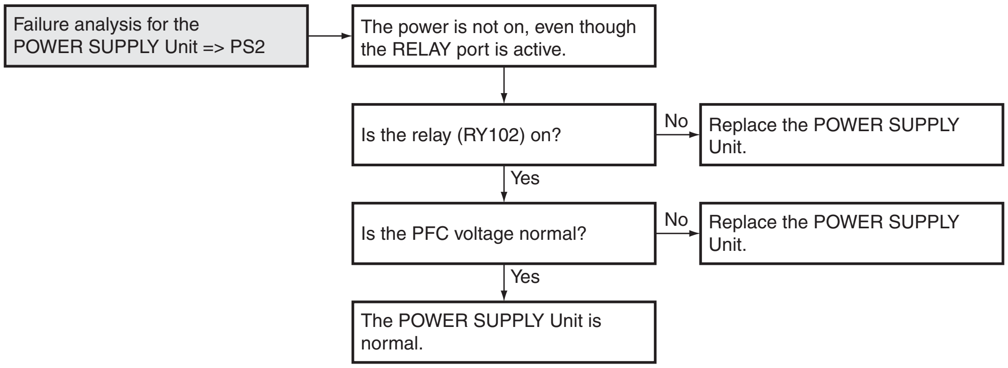
[2] POWER SUPPLY UNIT

Flowchart of Failure Analysis for The POWER SUPPLY Unit


Failure analysis for the POWER SUPPLY Unit => PS1
STB 3.4 V power is not output.
Is the cable connected firmly to the P7 connector?
No
Properly connect the cable between the P7 and M2 connectors.
Yes
Is the cable to the P7 connector broken?
Yes
Replace the defective cable (J109).
No
Is the fuse (F102) blown?
Yes
Replace the POWER SUPPLY Unit.
No
Is one of the limiting resistors (R126) blown?
Yes
Replace the POWER SUPPLY Unit.
No
The POWER SUPPLY Unit is normal.

Check the voltage at the MAIN Assy and POWER SUPPLY Unit.

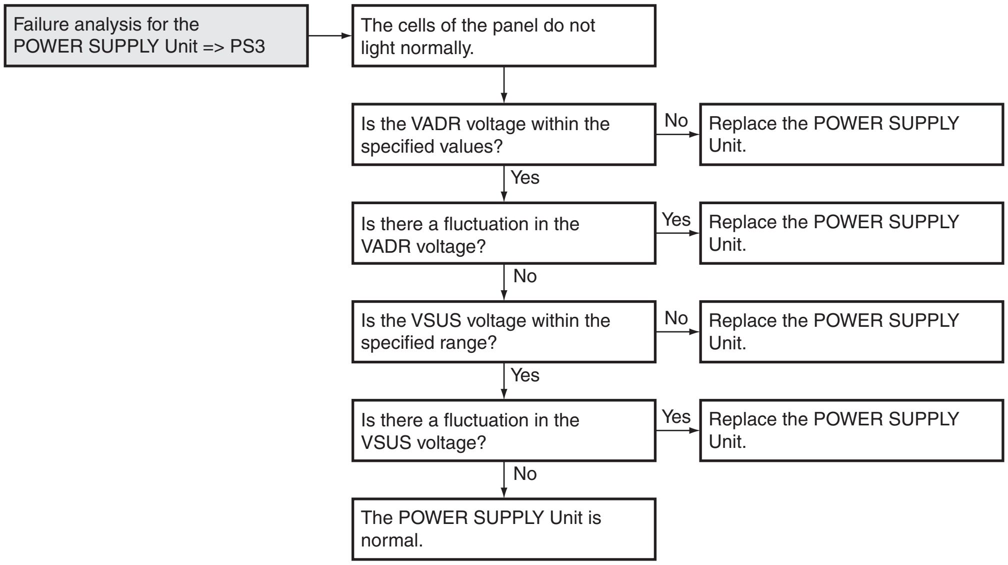
Check the resistance between D112 cathode and JW194 (jumper), using a tester.


Failure analysis for the POWER SUPPLY Unit => PS2
The power is not on, even though the RELAY port is active.
Is the relay (RY102) on?
No
Replace the POWER SUPPLY Unit.
Yes
Is the PFC voltage normal?
No
Replace the POWER SUPPLY Unit.
Yes
The POWER SUPPLY Unit is normal.

- Check the relay operation at the JW281 (jumper). (Voltage: 5 V)
- Check the relay sound (click).

- Check the voltage between the JW154 (jumper) (-) and JW139 (jumper) (+).
- The voltage must be around 400 V. (340V or less are defective.)

Caution: High voltage!


Failure analysis for the POWER SUPPLY Unit => PS3
The cells of the panel do not light normally.
Is the VADR voltage within the specified values?
No
Replace the POWER SUPPLY Unit.
Yes
Is there a fluctuation in the VADR voltage?
Yes
Replace the POWER SUPPLY Unit.
No
Is the VSUS voltage within the specified range?
No
Replace the POWER SUPPLY Unit.
Yes
Is there a fluctuation in the VSUS voltage?
Yes
Replace the POWER SUPPLY Unit.
No
The POWER SUPPLY Unit is normal.

The specified voltage values are between 72 and 78 V.

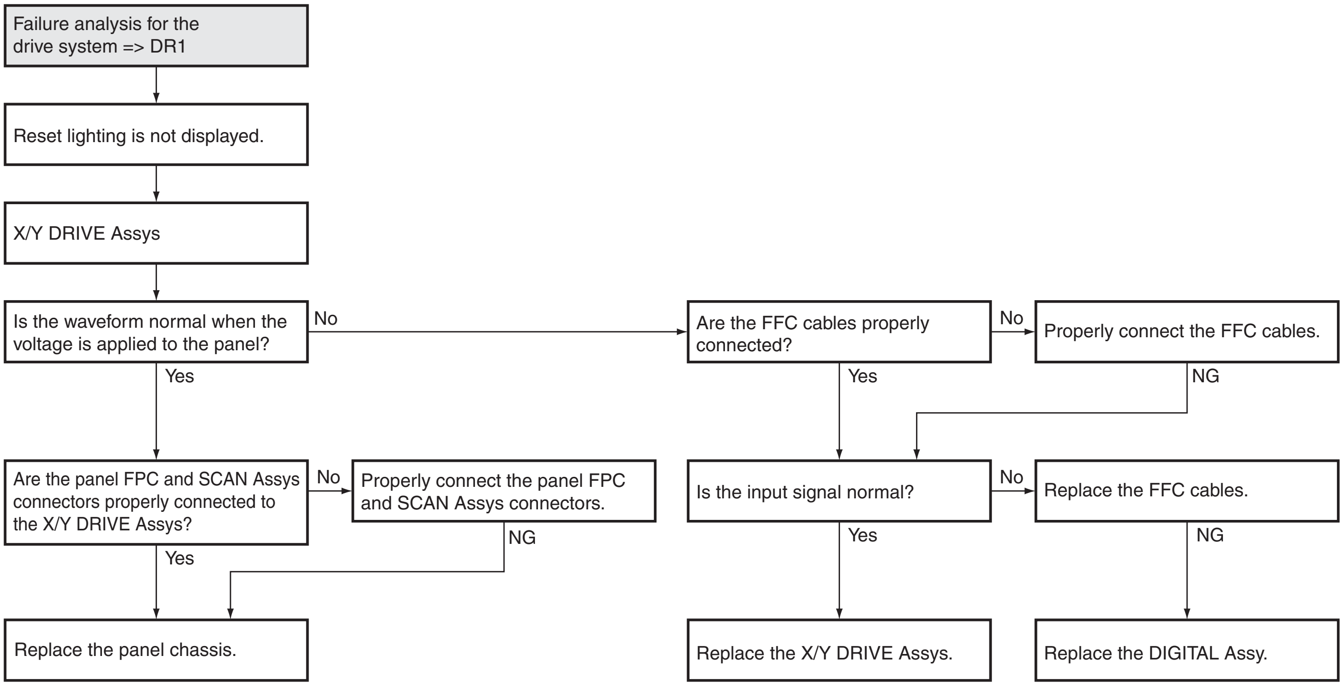
The ripple must be within 5 V.

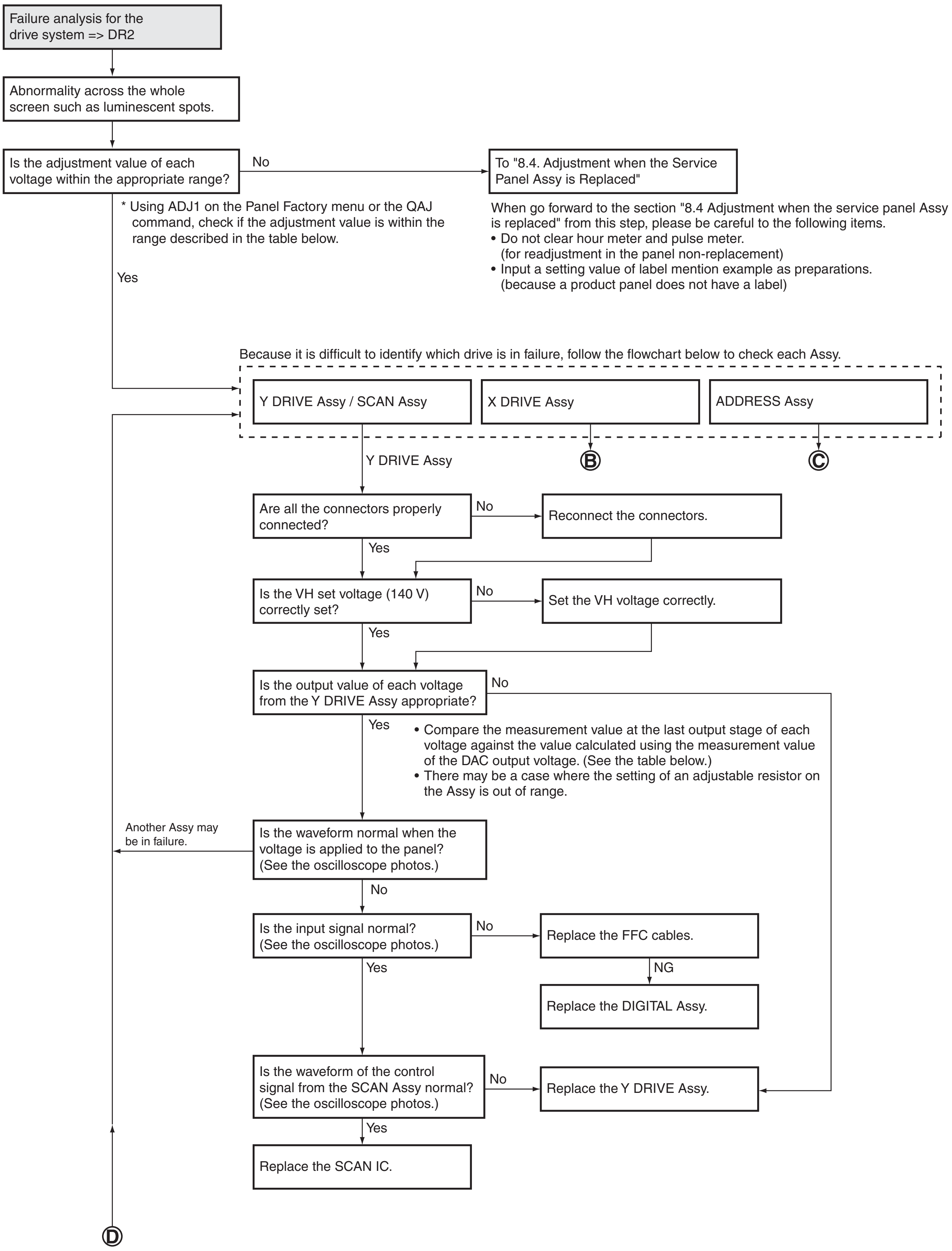
The specified voltage values are between 200 and 210 V (VSU: 125/35°C).

The ripple must be within 10 V.

[3] DRIVE ASSY

Flowchart of Failure Analysis for The Drive Assy


Failure analysis for the drive system => DR1
Reset lighting is not displayed.
X/Y DRIVE Assys
Is the waveform normal when the voltage is applied to the panel?
No
Yes
Are the FFC cables properly connected?
No
Properly connect the FFC cables.
Yes
NG
Are the panel FPC and SCAN Assys connectors properly connected to the X/Y DRIVE Assys?
No
Properly connect the panel FPC and SCAN Assys connectors.
NG
Yes
Is the input signal normal?
No
Replace the FFC cables.
Yes
NG
Replace the panel chassis.
Replace the X/Y DRIVE Assys.
Replace the DIGITAL Assy.

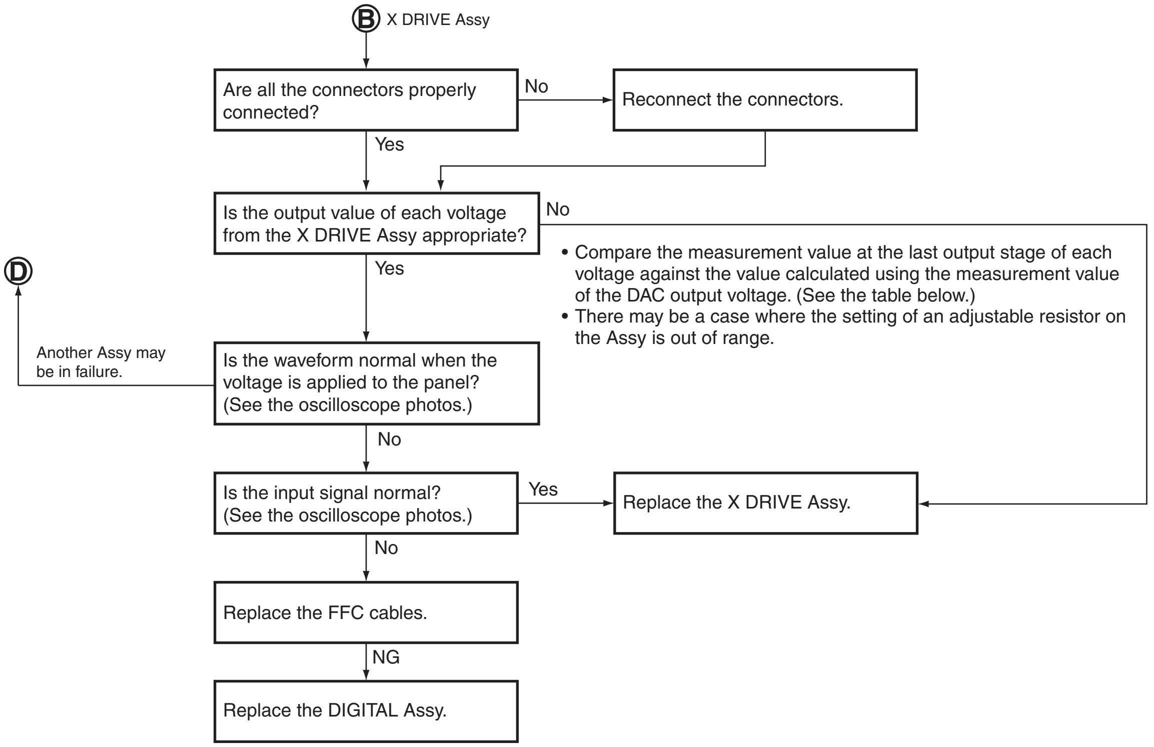

Failure analysis for the drive system => DR2
Abnormality across the whole screen such as luminescent spots.
Is the adjustment value of each voltage within the appropriate range?
No
To "8.4. Adjustment when the Service Panel Assy is Replaced"
Yes
Because it is difficult to identify which drive is in failure, follow the flowchart below to check each Assy.
Y DRIVE Assy / SCAN Assy
X DRIVE Assy
ADDRESS Assy
Y DRIVE Assy
B
C
Are all the connectors properly connected?
No
Reconnect the connectors.
Yes
Is the VH set voltage (140 V) correctly set?
No
Set the VH voltage correctly.
Yes
Is the output value of each voltage from the Y DRIVE Assy appropriate?
No
Yes
Another Assy may be in failure.
Is the waveform normal when the voltage is applied to the panel? (See the oscilloscope photos.)
No
Is the input signal normal? (See the oscilloscope photos.)
No
Replace the FFC cables.
NG
Replace the DIGITAL Assy.
Yes
Is the waveform of the control signal from the SCAN Assy normal? (See the oscilloscope photos.)
No
Replace the Y DRIVE Assy.
Yes
Replace the SCAN IC.
D

* Using ADJ1 on the Panel Factory menu or the QAJ command, check if the adjustment value is within the range described in the table below.

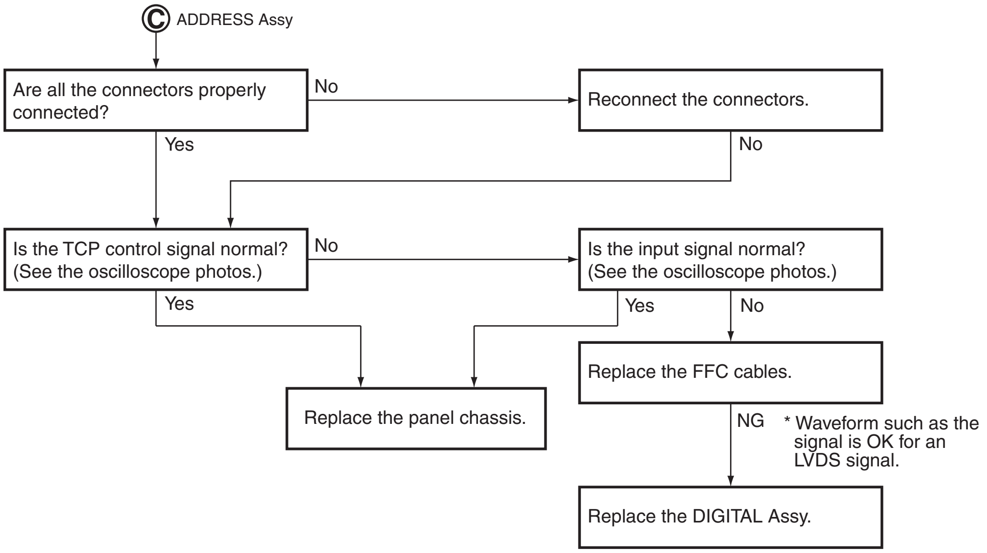
When go forward to the section "8.4 Adjustment when the service panel Assy is replaced" from this step, please be careful to the following items.

- Do not clear hour meter and pulse meter.
  (for readjustment in the panel non-replacement)
- Input a setting value of label mention example as preparations.
  (because a product panel does not have a label)

- Compare the measurement value at the last output stage of each voltage against the value calculated using the measurement value of the DAC output voltage. (See the table below.)
- There may be a case where the setting of an adjustable resistor on the Assy is out of range.


B
X DRIVE Assy
Are all the connectors properly connected?
No
Reconnect the connectors.
Yes
Is the output value of each voltage from the X DRIVE Assy appropriate?
No
Yes
D
Another Assy may be in failure.
Is the waveform normal when the voltage is applied to the panel? (See the oscilloscope photos.)
No
Is the input signal normal? (See the oscilloscope photos.)
Yes
Replace the X DRIVE Assy.
No
Replace the FFC cables.
NG
Replace the DIGITAL Assy.

- Compare the measurement value at the last output stage of each voltage against the value calculated using the measurement value of the DAC output voltage. (See the table below.)
- There may be a case where the setting of an adjustable resistor on the Assy is out of range.


C
ADDRESS Assy
Are all the connectors properly connected?
No
Reconnect the connectors.
Yes
No
Is the TCP control signal normal? (See the oscilloscope photos.)
No
Is the input signal normal? (See the oscilloscope photos.)
Yes
Yes
No
Replace the panel chassis.
Replace the FFC cables.
NG
Replace the DIGITAL Assy.

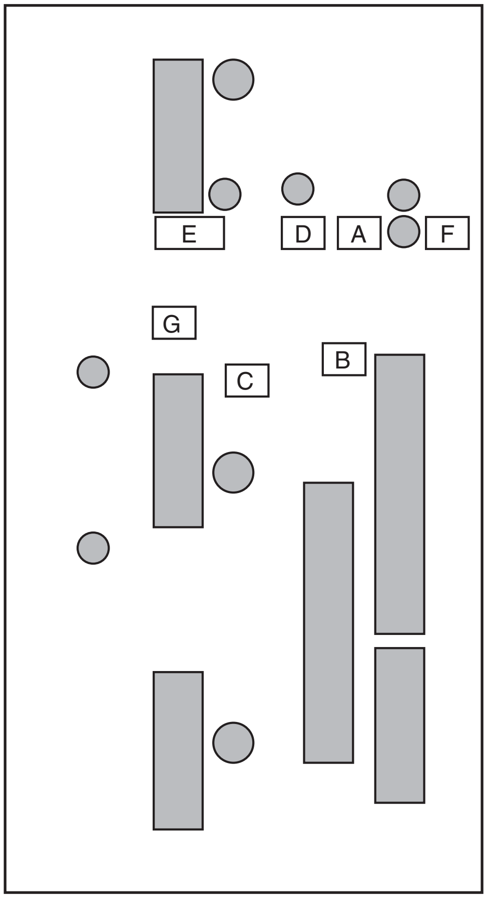
* Waveform such as the signal is OK for an LVDS signal.

Assy Name	Voltage to be Checked (V)	Adjustable Range	Measurement Point		Computation Formula for Voltage (Absolute Value)	
		50-inch	Output at the Last Stage	DAC Output (*2)	Computation Using DAC Output Voltage (V)	Computation Using Adjustment Value (*4)
Y DRIVE Assy	VSNOFS	101 to 157	CN2404 (*1)	Lower side of R2723 (*3)	VOFS_ADJ × 13.91 + 55.54	VOF value × 0.18 + 9.6
	VYRST	001 to 074	CN2401 (*1)	Upper side of R2621 (*3)	VYPRST_ADJ × 62.495 + 75.2	VRP value × 0.81 + 74.4
	VKNOFS1_2	121 to 164	CN2405 (*1)	Left side of R2754 (*3)	YVKNOFS1_ADJ × 36.85 + 159.3	(V1F value+VYF value-128) × 0.48 + 158.8
	VKNOFS3	107 to 149	CN2403 (*1)	Right side of R2757 (*3)	YVKNOFS3_ADJ × 36.85 + 159.3	(V3F value+VYF value-128) × 0.48 + 158.8
	VKNOFS4	151 to 193	CN2406 (*1)	Right side of R2755 (*3)	YVKNOFS4_ADJ × 36.85 + 159.3	(V4F value+VYF value-128) × 0.48 + 158.8
X DRIVE Assy	XKOFS1	085	CN1302 (*1)	K1402 (*1)	XKNOFS1_ADJ × 27.3 + 30	VX1 value × 0.35 + 29.7
	XKOFS2	047	CN1301 (*1)	K1401 (*1)	XKNOFS2_ADJ × 25.0 + 69.8	VX2 value × 0.32 + 69.5

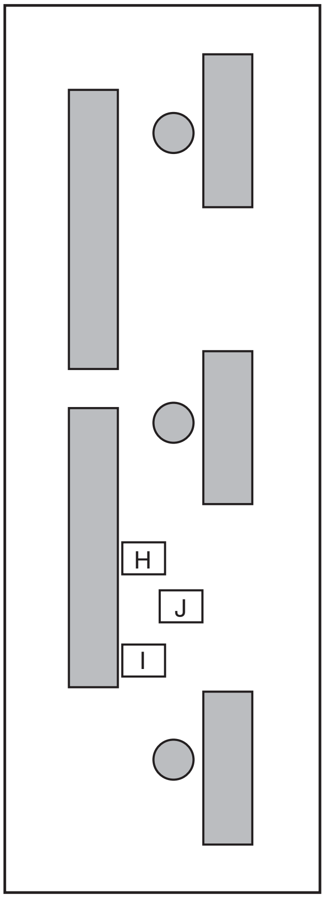
(*1): These parts have not been mounted.
(*2): It is recommended to measure the DAC output voltage with the drive off.
(*3): View when the Assy is mounted on the unit and viewed from the rear.

(*4): The value calculated using an adjustment value may be different from the value measured at the last output stage, because various corrections such as temperature correction are not taken into consideration.

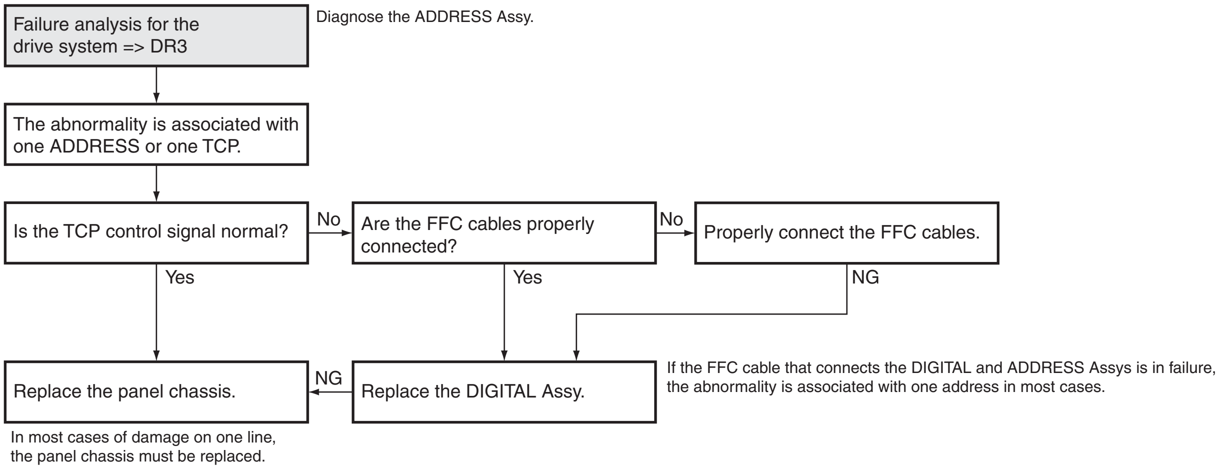
Diagrammatic view of the Y DRIVE Assy

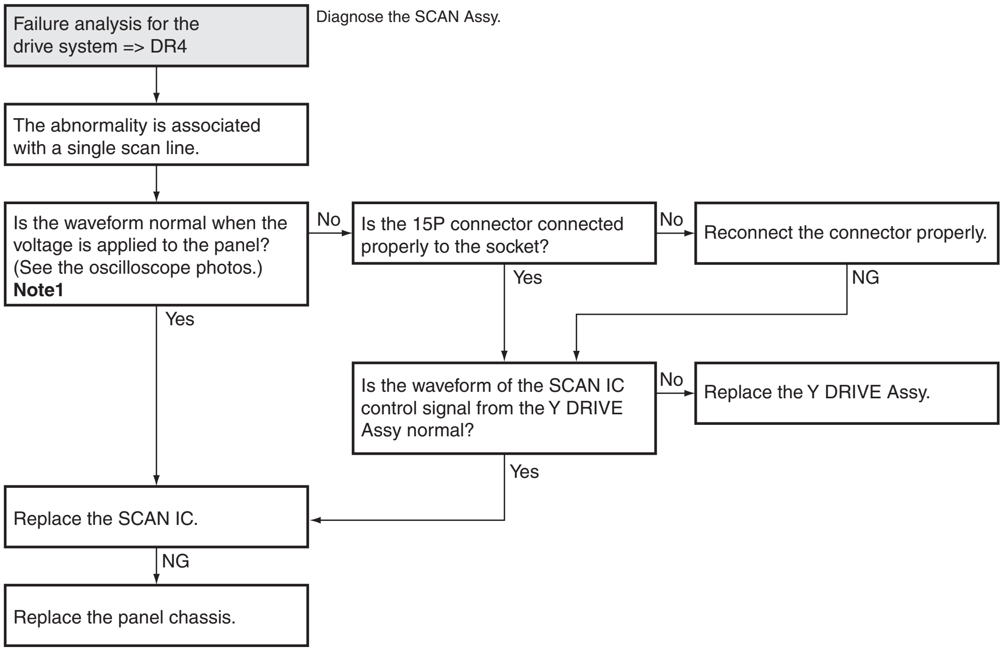


Diagrammatic view of the X DRIVE Assy



A	R2754,R2755,R2757
B	R2723
C	R2621
D	CN2405
E	CN2403,CN2406
F	CN2404
G	CN2401
H	K1401
I	K1402
J	CN1301,CN1302


Failure analysis for the drive system => DR3
Diagnose the ADDRESS Assy.
The abnormality is associated with one ADDRESS or one TCP.
Is the TCP control signal normal?
No
Are the FFC cables properly connected?
No
Properly connect the FFC cables.
Yes
Yes
NG
Replace the panel chassis.
NG
Replace the DIGITAL Assy.
If the FFC cable that connects the DIGITAL and ADDRESS Assys is in failure, the abnormality is associated with one address in most cases.
In most cases of damage on one line, the panel chassis must be replaced.


Failure analysis for the drive system => DR4
Diagnose the SCAN Assy.
The abnormality is associated with a single scan line.
Is the waveform normal when the voltage is applied to the panel? (See the oscilloscope photos.) Note1
No
Is the 15P connector connected properly to the socket?
No
Reconnect the connector properly.
Yes
NG
Yes
Is the waveform of the SCAN IC control signal from the Y DRIVE Assy normal?
No
Replace the Y DRIVE Assy.
Yes
Replace the SCAN IC.
NG
Replace the panel chassis.

Note 1:
In a case where confirmation of the waveform for a particular line is impossible with an oscilloscope, it is possible to identify a defective line by lighting a particular line, using the following commands: (The SCAN IC outputting each line refers to the table.)

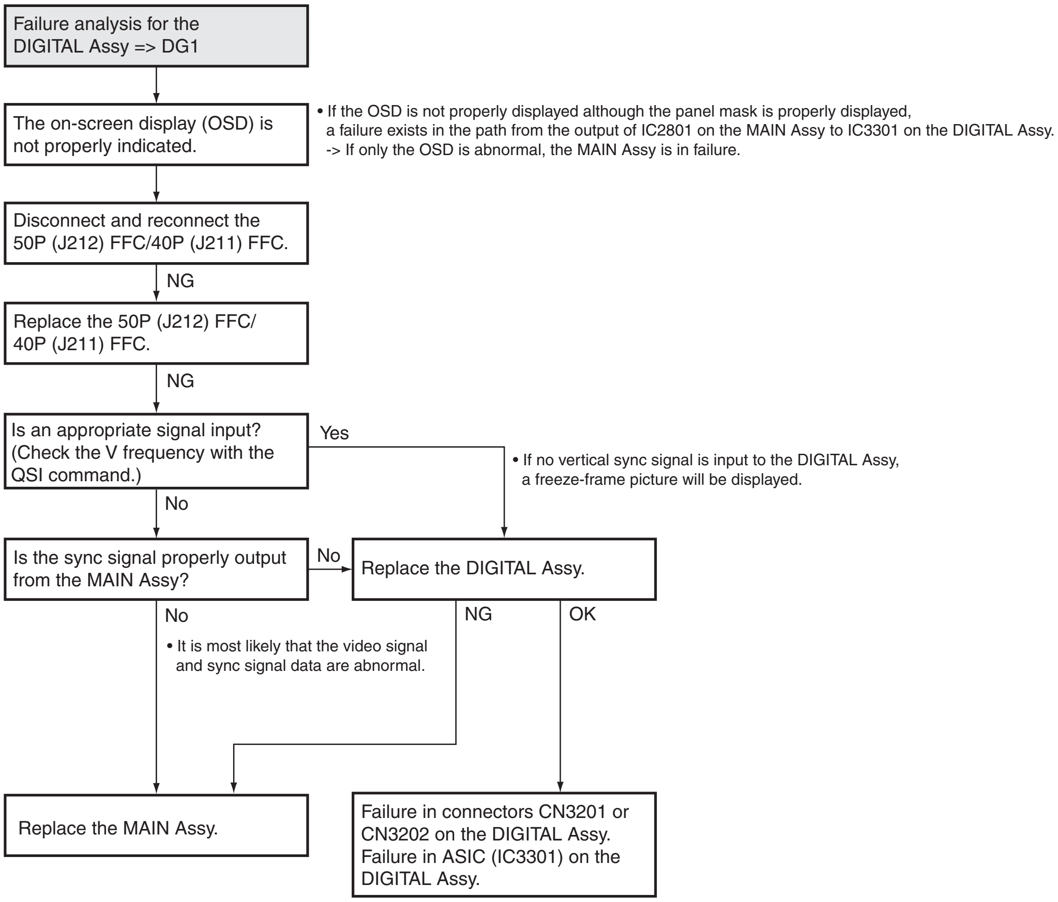
```
PON
FAY
MKRS01
BSMS01 (Command for reducing phosphor burn-in)
$250000****   (In place of ****, input a figure between 0001 and 1080, which denotes
               an ordinal number of a particular line.)
```

With the above commands, a particular line lights. Be careful to light a line for as short a time as possible, to avoid phosphor burn-in.
After a particular line is identified, display an all-white screen to protect the screen from burn-in.

IC No.	Line Number	Object Line
No 1	66	0001 to 0066
No 2	68	0067 to 0134
No 3	68	0135 to 0202
No 4	68	0203 to 0270
No 5	68	0271 to 0338
No 6	68	0339 to 0406
No 7	68	0407 to 0474
No 8	66	0475 to 0540
No 9	66	0541 to 0606
No 10	68	0607 to 0674
No 11	68	0675 to 0742
No 12	68	0743 to 0810
No 13	68	0811 to 0878
No 14	68	0879 to 0946
No 15	68	0947 to 1014
No 16	66	1015 to 1080

[4] DIGITAL ASSY

Flowchart of Failure Analysis for The DIGITAL Assy


Failure analysis for the DIGITAL Assy => DG1
The on-screen display (OSD) is not properly indicated.
Disconnect and reconnect the 50P (J212) FFC/40P (J211) FFC.
NG
Replace the 50P (J212) FFC/ 40P (J211) FFC.
NG
Is an appropriate signal input? (Check the V frequency with the QSI command.)
Yes
No
Is the sync signal properly output from the MAIN Assy?
No
Replace the DIGITAL Assy.
No
NG
OK
Replace the MAIN Assy.
Failure in connectors CN3201 or CN3202 on the DIGITAL Assy. Failure in ASIC (IC3301) on the DIGITAL Assy.

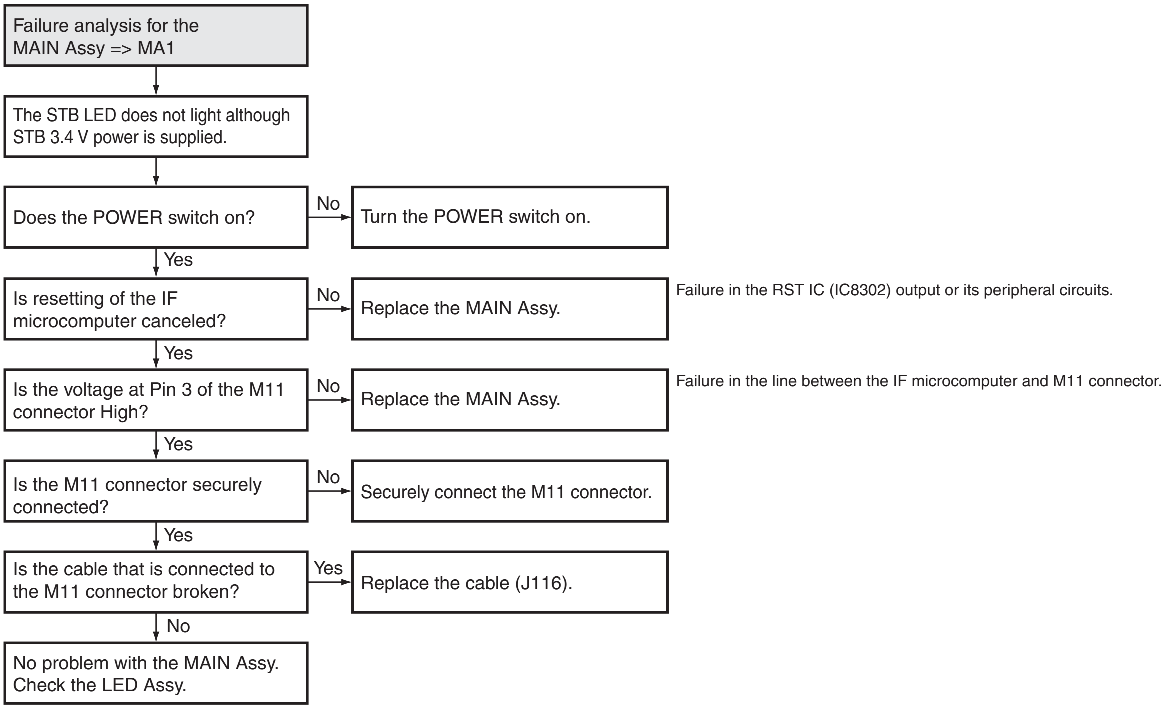
- If the OSD is not properly displayed although the panel mask is properly displayed, a failure exists in the path from the output of IC2801 on the MAIN Assy to IC3301 on the DIGITAL Assy.
  -> If only the OSD is abnormal, the MAIN Assy is in failure.

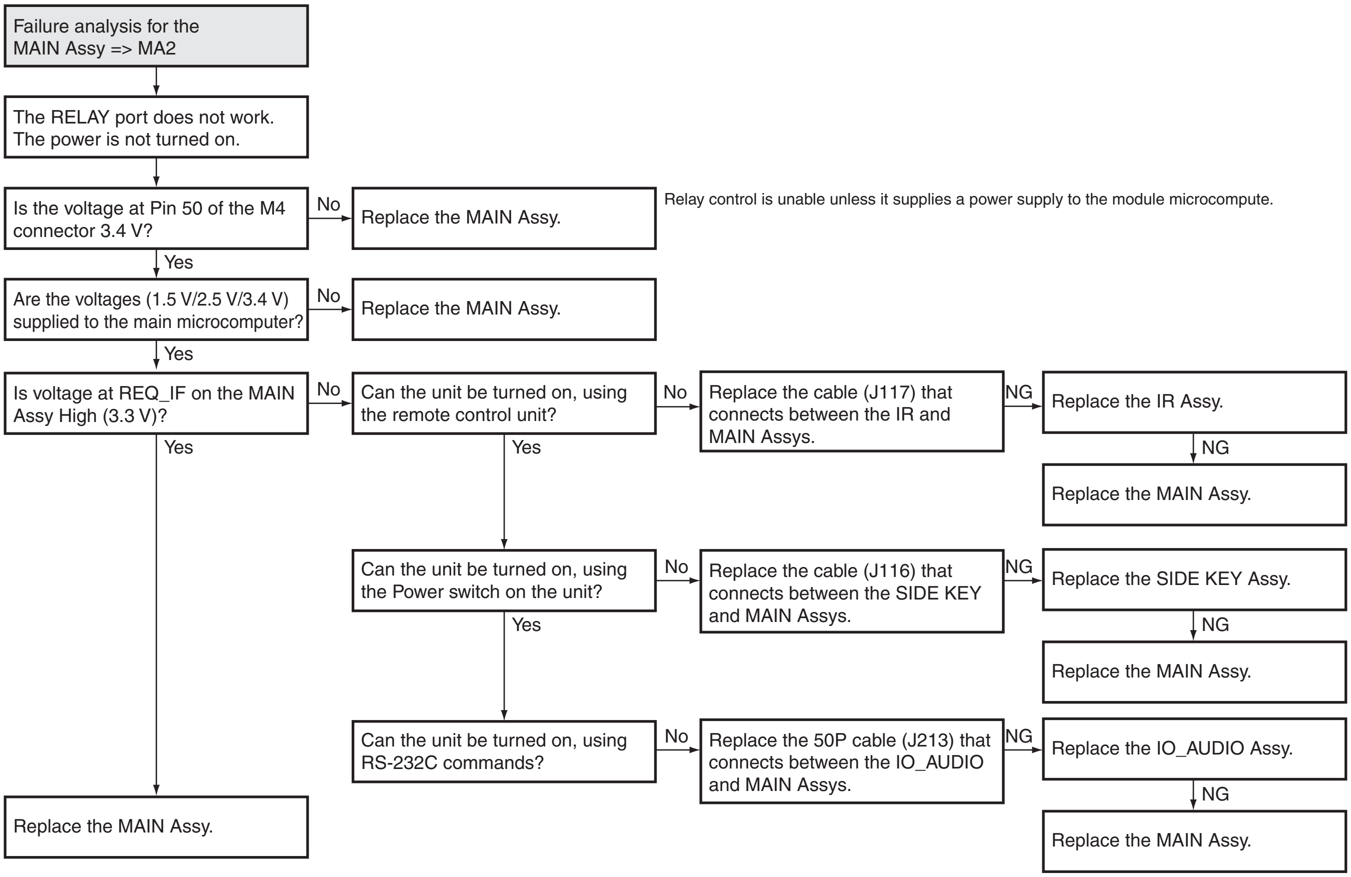
- If no vertical sync signal is input to the DIGITAL Assy, a freeze-frame picture will be displayed.

- It is most likely that the video signal and sync signal data are abnormal.

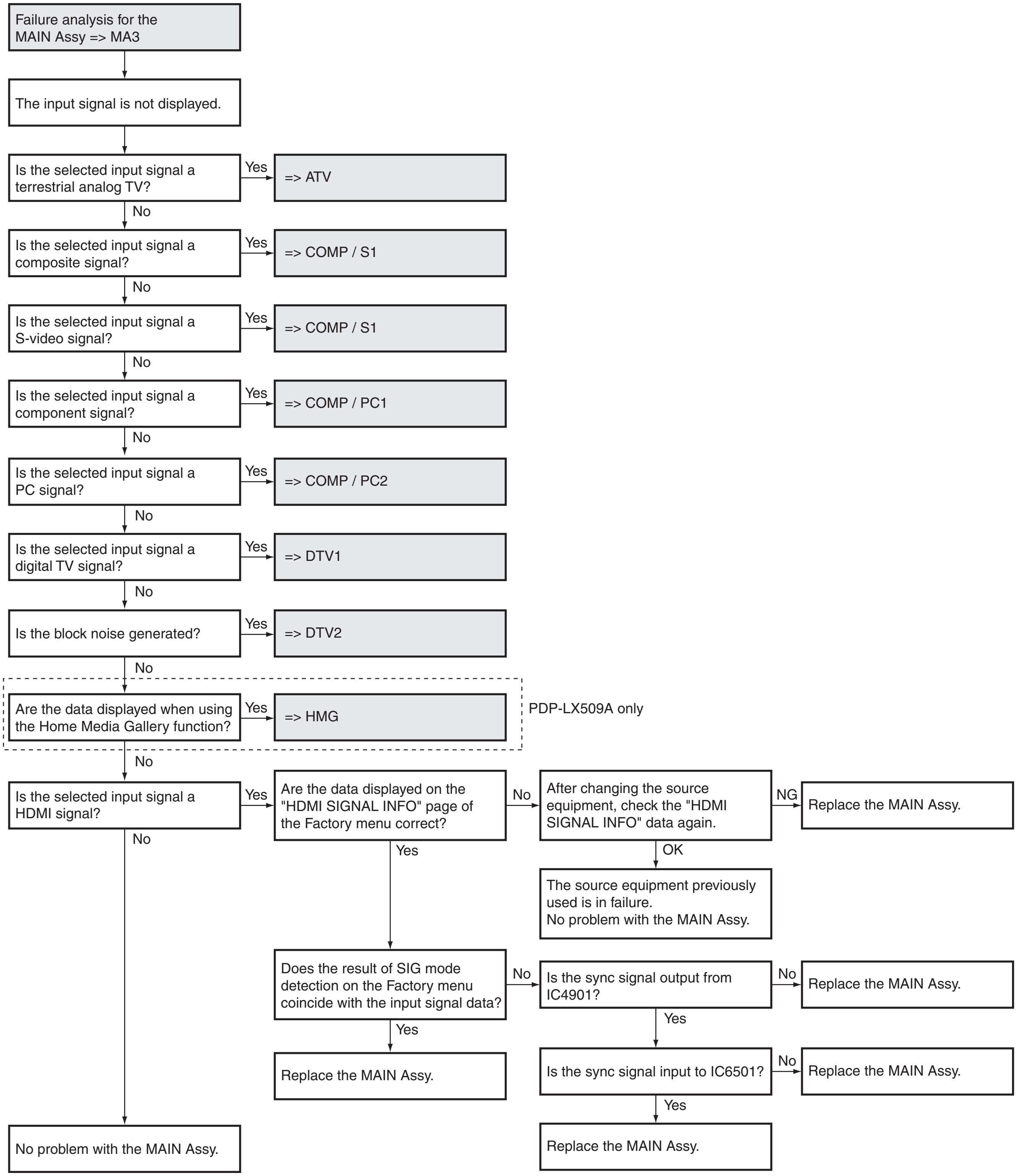
[5] MAIN ASSY

Flowchart of Failure Analysis for The MAIN Assy


Failure analysis for the MAIN Assy => MA1
The STB LED does not light although STB 3.4 V power is supplied.
Does the POWER switch on?
No
Turn the POWER switch on.
Yes
Is resetting of the IF microcomputer canceled?
No
Replace the MAIN Assy.
Failure in the RST IC (IC8302) output or its peripheral circuits.
Yes
Is the voltage at Pin 3 of the M11 connector High?
No
Replace the MAIN Assy.
Failure in the line between the IF microcomputer and M11 connector.
Yes
Is the M11 connector securely connected?
No
Securely connect the M11 connector.
Yes
Is the cable that is connected to the M11 connector broken?
Yes
Replace the cable (J116).
No
No problem with the MAIN Assy. Check the LED Assy.

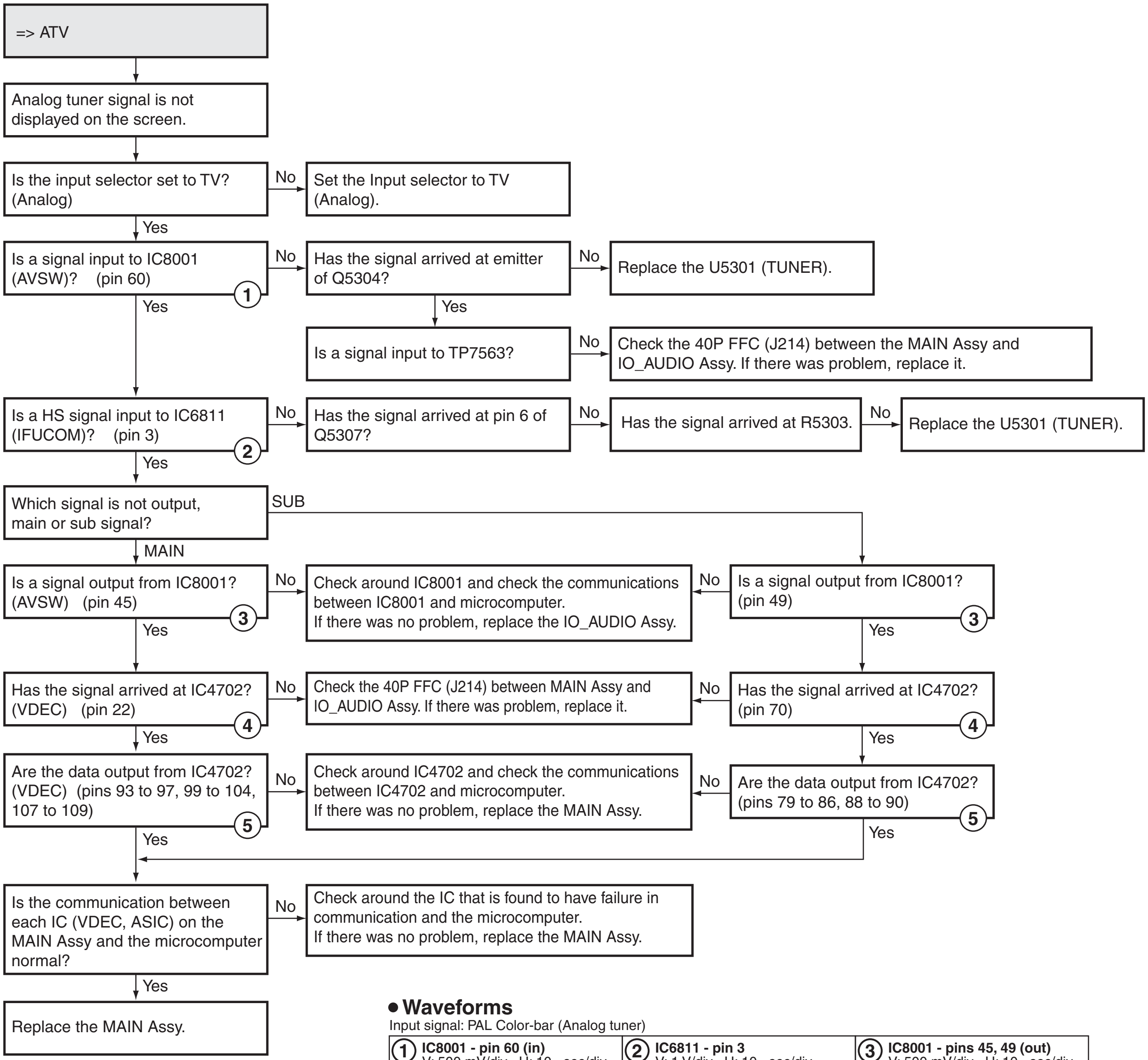

Failure analysis for the MAIN Assy => MA2
The RELAY port does not work. The power is not turned on.
Is the voltage at Pin 50 of the M4 connector 3.4 V?
No
Replace the MAIN Assy.
Relay control is unable unless it supplies a power supply to the module microcompute.
Yes
Are the voltages (1.5 V/2.5 V/3.4 V) supplied to the main microcomputer?
No
Replace the MAIN Assy.
Yes
Is voltage at REQ_IF on the MAIN Assy High (3.3 V)?
No
Can the unit be turned on, using the remote control unit?
No
Replace the cable (J117) that connects between the IR and MAIN Assys.
NG
Replace the IR Assy.
NG
Replace the MAIN Assy.
Yes
Can the unit be turned on, using the Power switch on the unit?
No
Replace the cable (J116) that connects between the SIDE KEY and MAIN Assys.
NG
Replace the SIDE KEY Assy.
NG
Replace the MAIN Assy.
Yes
Can the unit be turned on, using RS-232C commands?
No
Replace the 50P cable (J213) that connects between the IO_AUDIO and MAIN Assys.
NG
Replace the IO_AUDIO Assy.
NG
Replace the MAIN Assy.
Yes
Replace the MAIN Assy.

Flowchart of Failure Analysis for The MAIN Assy


Failure analysis for the MAIN Assy => MA3
The input signal is not displayed.
Is the selected input signal a terrestrial analog TV?
Yes
=> ATV
No
Is the selected input signal a composite signal?
Yes
=> COMP / S1
No
Is the selected input signal a S-video signal?
Yes
=> COMP / S1
No
Is the selected input signal a component signal?
Yes
=> COMP / PC1
No
Is the selected input signal a PC signal?
Yes
=> COMP / PC2
No
Is the selected input signal a digital TV signal?
Yes
=> DTV1
No
Is the block noise generated?
Yes
=> DTV2
No
Are the data displayed when using the Home Media Gallery function?
Yes
=> HMG
PDP-LX509A only
No
Is the selected input signal a HDMI signal?
Yes
Are the data displayed on the "HDMI SIGNAL INFO" page of the Factory menu correct?
No
After changing the source equipment, check the "HDMI SIGNAL INFO" data again.
NG
Replace the MAIN Assy.
OK
The source equipment previously used is in failure. No problem with the MAIN Assy.
Yes
Does the result of SIG mode detection on the Factory menu coincide with the input signal data?
No
Is the sync signal output from IC4901?
No
Replace the MAIN Assy.
Yes
Is the sync signal input to IC6501?
No
Replace the MAIN Assy.
Yes
Replace the MAIN Assy.
Yes
Replace the MAIN Assy.
No
No problem with the MAIN Assy.

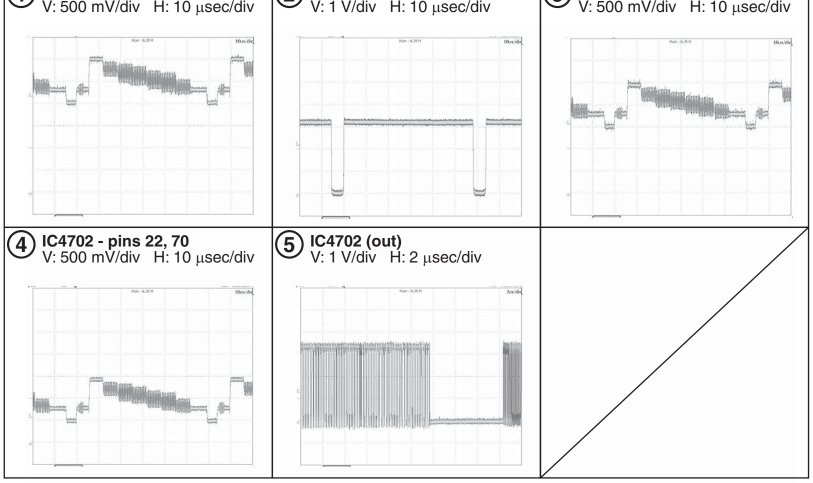
[6] VIDEO SYSTEM

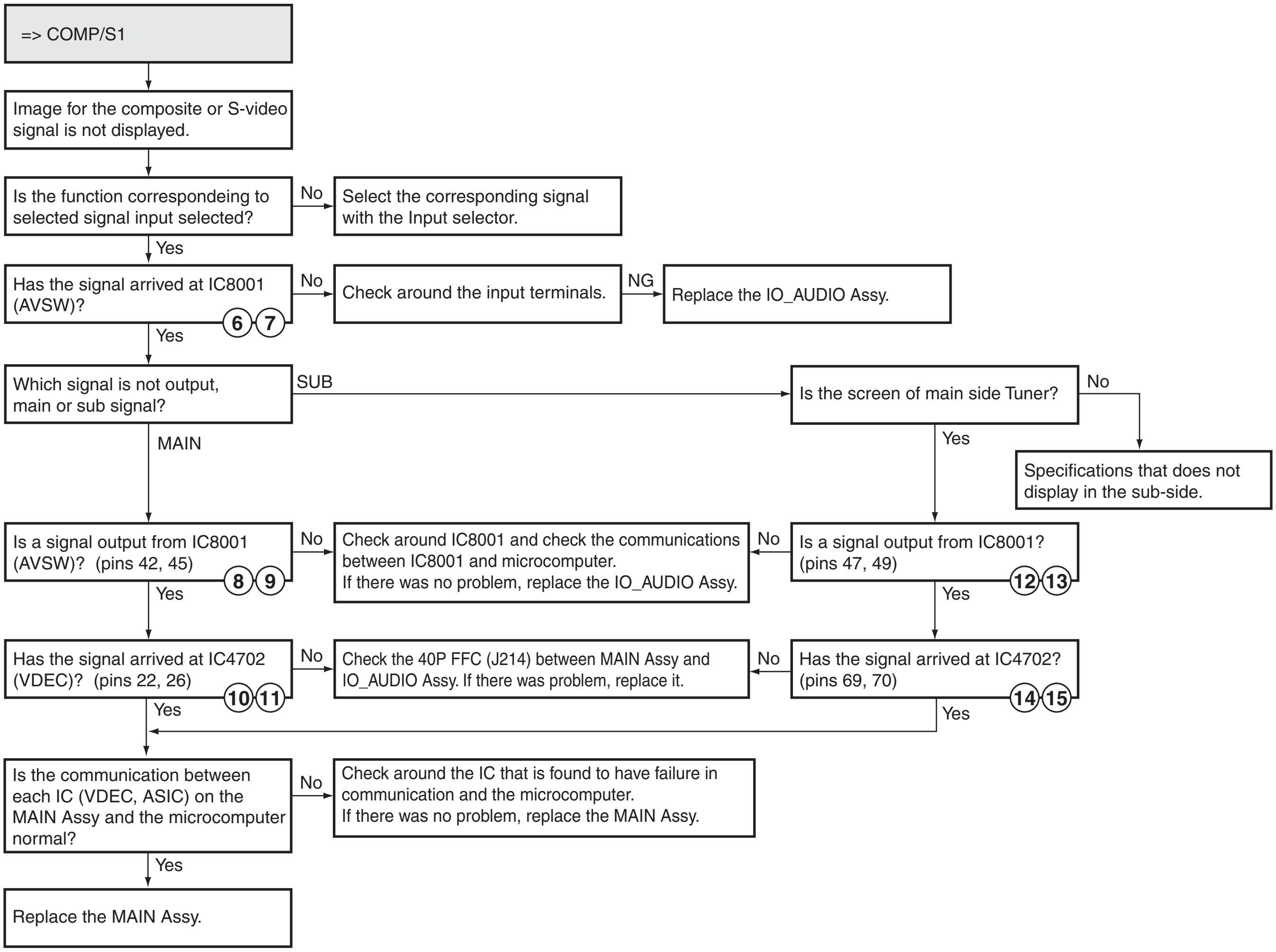
Flowchart of Failure Analysis for The Video System


=> ATV
Analog tuner signal is not displayed on the screen.
Is the input selector set to TV? (Analog)
No
Set the Input selector to TV (Analog).
Yes
Is a signal input to IC8001 (AVSW)? (pin 60)
1
No
Has the signal arrived at emitter of Q5304?
No
Replace the U5301 (TUNER).
Yes
Yes
Is a signal input to TP7563?
No
Check the 40P FFC (J214) between the MAIN Assy and IO_AUDIO Assy. If there was problem, replace it.
Is a HS signal input to IC6811 (IFUCOM)? (pin 3)
2
No
Has the signal arrived at pin 6 of Q5307?
No
Has the signal arrived at R5303.
No
Replace the U5301 (TUNER).
Yes
Which signal is not output, main or sub signal?
SUB
MAIN
Is a signal output from IC8001? (AVSW) (pin 45)
3
No
Check around IC8001 and check the communications between IC8001 and microcomputer. If there was no problem, replace the IO_AUDIO Assy.
No
Is a signal output from IC8001? (pin 49)
3
Yes
Yes
Has the signal arrived at IC4702? (VDEC) (pin 22)
4
No
Check the 40P FFC (J214) between MAIN Assy and IO_AUDIO Assy. If there was problem, replace it.
No
Has the signal arrived at IC4702? (pin 70)
4
Yes
Yes
Are the data output from IC4702? (VDEC) (pins 93 to 97, 99 to 104, 107 to 109)
5
No
Check around IC4702 and check the communications between IC4702 and microcomputer. If there was no problem, replace the MAIN Assy.
No
Are the data output from IC4702? (pins 79 to 86, 88 to 90)
5
Yes
Yes
Is the communication between each IC (VDEC, ASIC) on the MAIN Assy and the microcomputer normal?
No
Check around the IC that is found to have failure in communication and the microcomputer. If there was no problem, replace the MAIN Assy.
Yes
Replace the MAIN Assy.

● Waveforms

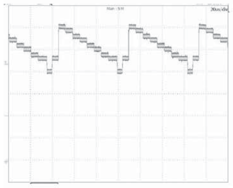
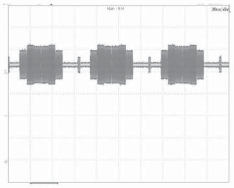
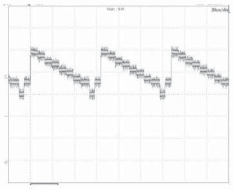
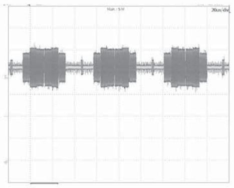
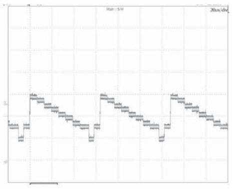
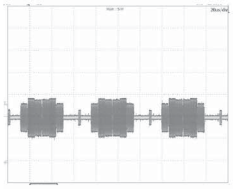
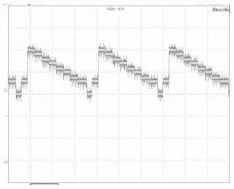
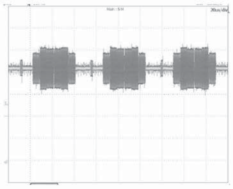
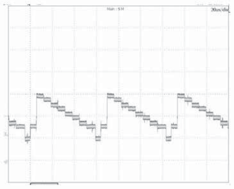
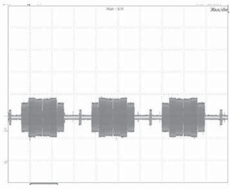
Input signal: PAL Color-bar (Analog tuner)

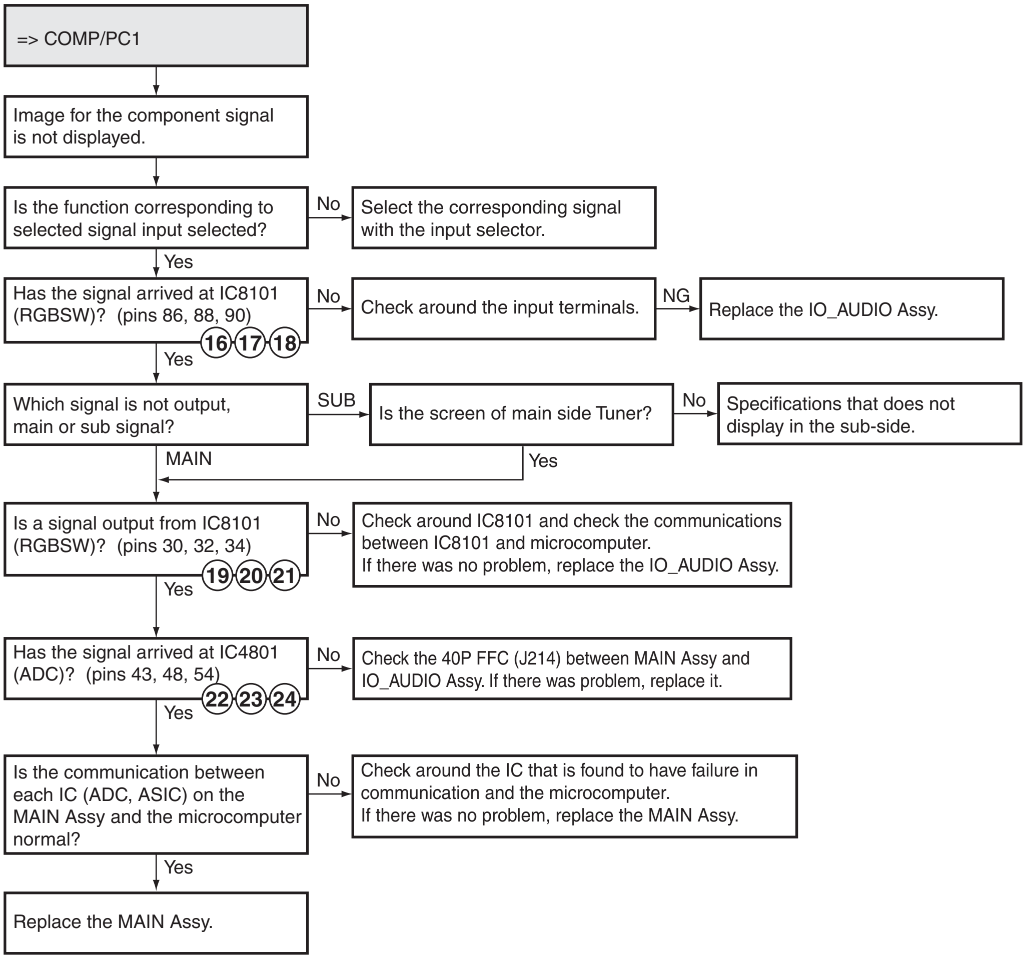



=> COMP/S1
Image for the composite or S-video signal is not displayed.
Is the function correspondeing to selected signal input selected?
No
Select the corresponding signal with the Input selector.
Yes
Has the signal arrived at IC8001 (AVSW)? ⑥⑦
No
Check around the input terminals.
NG
Replace the IO_AUDIO Assy.
Yes
Which signal is not output, main or sub signal?
SUB
Is the screen of main side Tuner?
No
Specifications that does not display in the sub-side.
Yes
MAIN
Is a signal output from IC8001 (AVSW)? (pins 42, 45) ⑧⑨
No
Check around IC8001 and check the communications between IC8001 and microcomputer. If there was no problem, replace the IO_AUDIO Assy.
No
Is a signal output from IC8001? (pins 47, 49) ⑫⑬
Yes
Yes
Has the signal arrived at IC4702 (VDEC)? (pins 22, 26) ⑩⑪
No
Check the 40P FFC (J214) between MAIN Assy and IO_AUDIO Assy. If there was problem, replace it.
No
Has the signal arrived at IC4702? (pins 69, 70) ⑭⑮
Yes
Yes
Is the communication between each IC (VDEC, ASIC) on the MAIN Assy and the microcomputer normal?
No
Check around the IC that is found to have failure in communication and the microcomputer. If there was no problem, replace the MAIN Assy.
Yes
Replace the MAIN Assy.

• Waveforms

Input signal: PAL Color-bar (S termial)

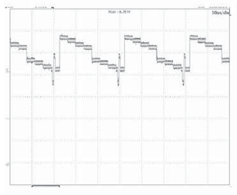
⑥ **IC8001 - pins 87, 93 (Y)** V: 500 mV/div H: 20 µsec/div 	⑦ **IC8001 - pins 89, 95 (C)** V: 500 mV/div H: 20 µsec/div 	⑧ **IC8001 - pin 45 (Main Y)** V: 500 mV/div H: 20 µsec/div 	⑨ **IC8001 - pin 42 (Main C)** V: 500 mV/div H: 20 µsec/div 	⑩ **IC4702 - pin 22 (Main Y)** V: 500 mV/div H: 20 µsec/div 
⑪ **IC4702 - pin 26 (Main C)** V: 500 mV/div H: 20 µsec/div 	⑫ **IC8001 - pin 49 (Sub Y)** V: 500 mV/div H: 20 µsec/div 	⑬ **IC8001 - pin 47 (Sub C)** V: 500 mV/div H: 20 µsec/div 	⑭ **IC4702 - pin 70 (Sub Y)** V: 500 mV/div H: 20 µsec/div 	⑮ **IC4702 - pin 69 (Sub C)** V: 500 mV/div H: 20 µsec/div 


=> COMP/PC1
Image for the component signal is not displayed.
Is the function corresponding to selected signal input selected?
No
Select the corresponding signal with the input selector.
Yes
Has the signal arrived at IC8101 (RGBSW)? (pins 86, 88, 90) ⑯⑰⑱
No
Check around the input terminals.
NG
Replace the IO_AUDIO Assy.
Yes
Which signal is not output, main or sub signal?
SUB
Is the screen of main side Tuner?
No
Specifications that does not display in the sub-side.
Yes
MAIN
Is a signal output from IC8101 (RGBSW)? (pins 30, 32, 34) ⑲⑳㉑
No
Check around IC8101 and check the communications between IC8101 and microcomputer. If there was no problem, replace the IO_AUDIO Assy.
Yes
Has the signal arrived at IC4801 (ADC)? (pins 43, 48, 54) ㉒㉓㉔
No
Check the 40P FFC (J214) between MAIN Assy and IO_AUDIO Assy. If there was problem, replace it.
Yes
Is the communication between each IC (ADC, ASIC) on the MAIN Assy and the microcomputer normal?
No
Check around the IC that is found to have failure in communication and the microcomputer. If there was no problem, replace the MAIN Assy.
Yes
Replace the MAIN Assy.

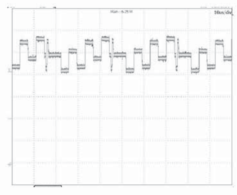
● Waveforms

Input signal: Color-bar (Component 720p/50 Hz)

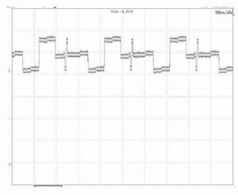
⑯ IC8101 - pin 86 (Y)
V: 500 mV/div H: 20 µsec/div



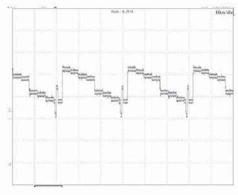
⑰ IC8101 - pin 88 (Pb)
V: 500 mV/div H: 20 µsec/div



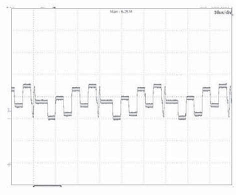
⑱ IC8101 - pin 90 (Pr)
V: 500 mV/div H: 20 µsec/div



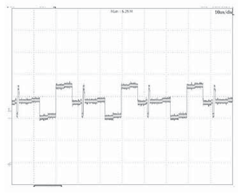
⑲ IC8101 - pin 34 (Y)
V: 500 mV/div H: 20 µsec/div



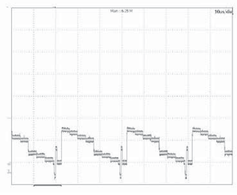
⑳ IC8101 - pin 32 (Pb)
V: 500 mV/div H: 20 µsec/div



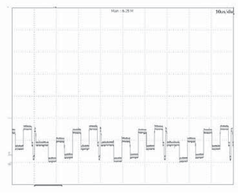
㉑ IC8101 - pin 30 (Pr)
V: 500 mV/div H: 20 µsec/div



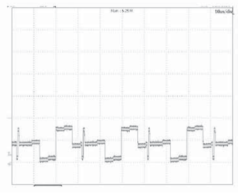
㉒ IC4801 - pin 48 (Y)
V: 500 mV/div H: 20 µsec/div

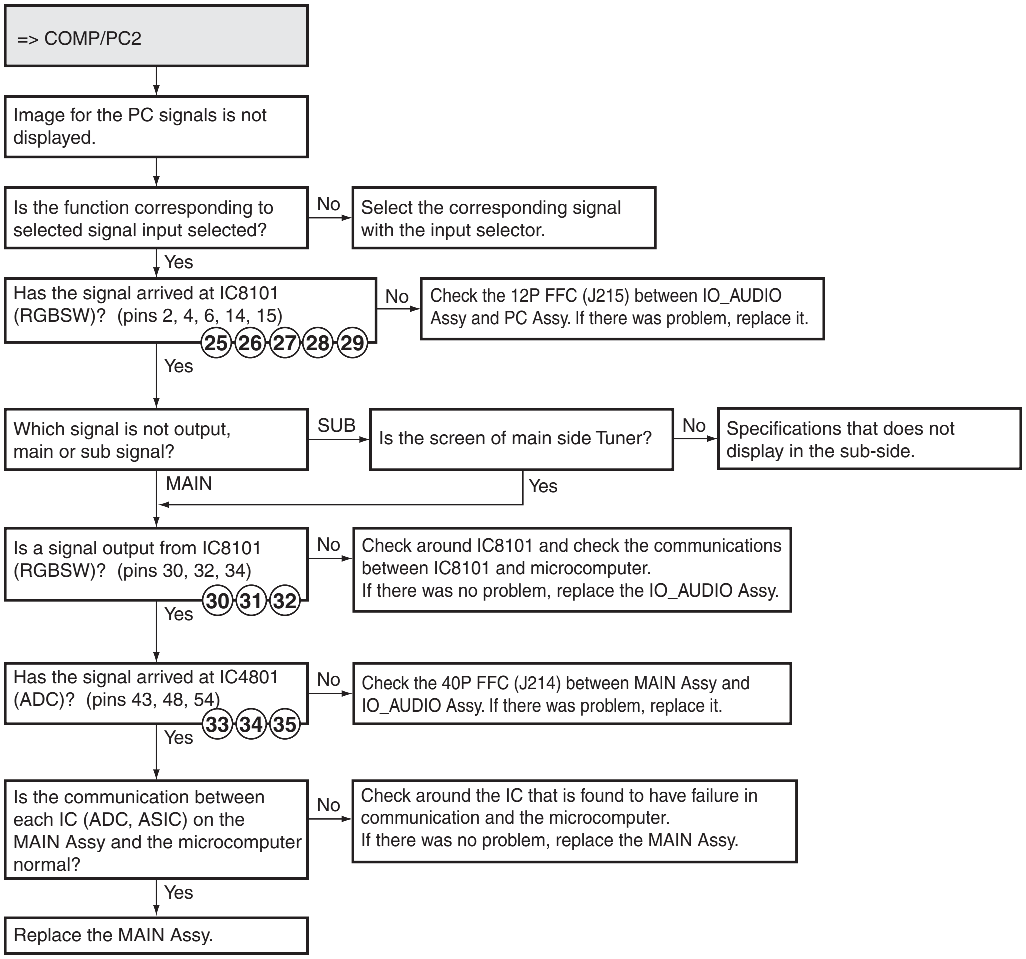


㉓ IC4801 - pin 43 (Pb)
V: 500 mV/div H: 20 µsec/div



㉔ IC4801 - pin 54 (Pr)
V: 500 mV/div H: 20 µsec/div





=> COMP/PC2

Image for the PC signals is not displayed.

Is the function corresponding to selected signal input selected?

Select the corresponding signal with the input selector.

Has the signal arrived at IC8101 (RGBSW)? (pins 2, 4, 6, 14, 15) ㉕㉖㉗㉘㉙

Check the 12P FFC (J215) between IO_AUDIO Assy and PC Assy. If there was problem, replace it.

Which signal is not output, main or sub signal?

Is the screen of main side Tuner?

Specifications that does not display in the sub-side.

Is a signal output from IC8101 (RGBSW)? (pins 30, 32, 34) ㉚㉛㉜

Check around IC8101 and check the communications between IC8101 and microcomputer.
If there was no problem, replace the IO_AUDIO Assy.

Has the signal arrived at IC4801 (ADC)? (pins 43, 48, 54) ㉝㉞㉟

Check the 40P FFC (J214) between MAIN Assy and IO_AUDIO Assy. If there was problem, replace it.

Is the communication between each IC (ADC, ASIC) on the MAIN Assy and the microcomputer normal?

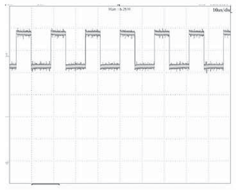
Check around the IC that is found to have failure in communication and the microcomputer.
If there was no problem, replace the MAIN Assy.

Replace the MAIN Assy.

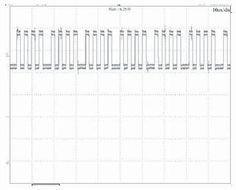
• Waveforms

Input signal: Color-bar (PC SXGA/60 Hz)

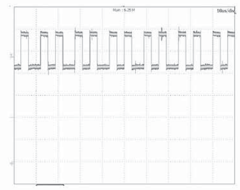
㉕ **IC8101 - pin 2 (G in)**
V: 500 mV/div H: 10 µsec/div



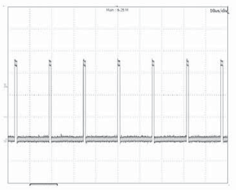
㉖ **IC8101 - pin 4 (B in)**
V: 500 mV/div H: 10 µsec/div



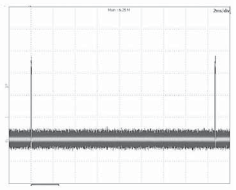
㉗ **IC8101 - pin 6 (R in)**
V: 500 mV/div H: 10 µsec/div



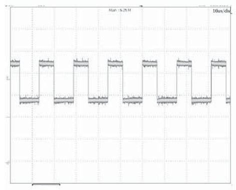
㉘ **IC8101 - pin 14 (HD in)**
V: 1 V/div H: 10 µsec/div
(polarity is no care)



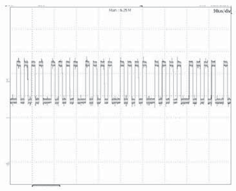
㉙ **IC8101 - pin 15 (VD in)**
V: 1 V/div H: 2 msec/div
(polarity is no care)



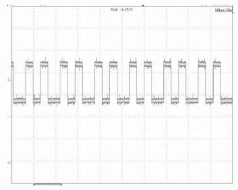
㉚ **IC8101 - pin 34 (G out)**
V: 500 mV/div H: 10 µsec/div



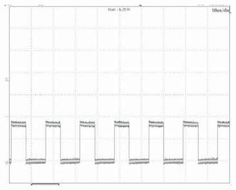
㉛ **IC8101 - pin 32 (B out)**
V: 500 mV/div H: 10 µsec/div



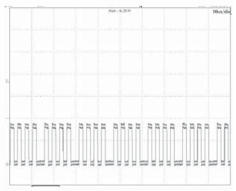
㉜ **IC8101 - pin 30 (R out)**
V: 500 mV/div H: 10 µsec/div



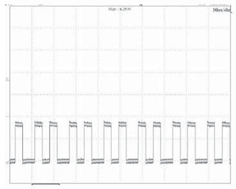
㉝ **IC4801 - pin 48 (G)**
V: 500 mV/div H: 10 µsec/div

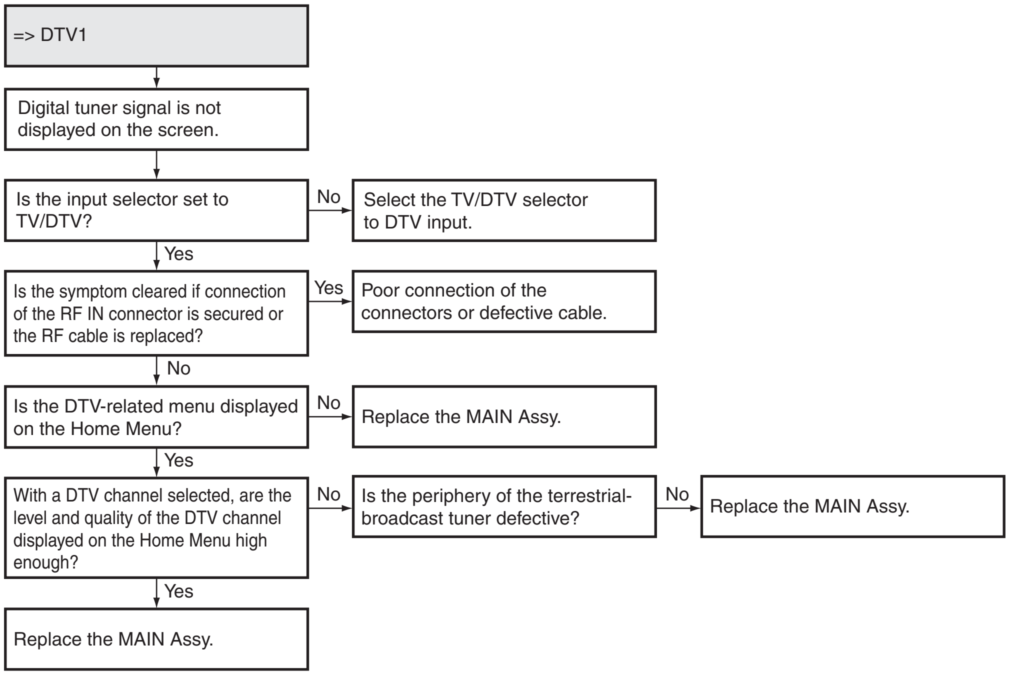


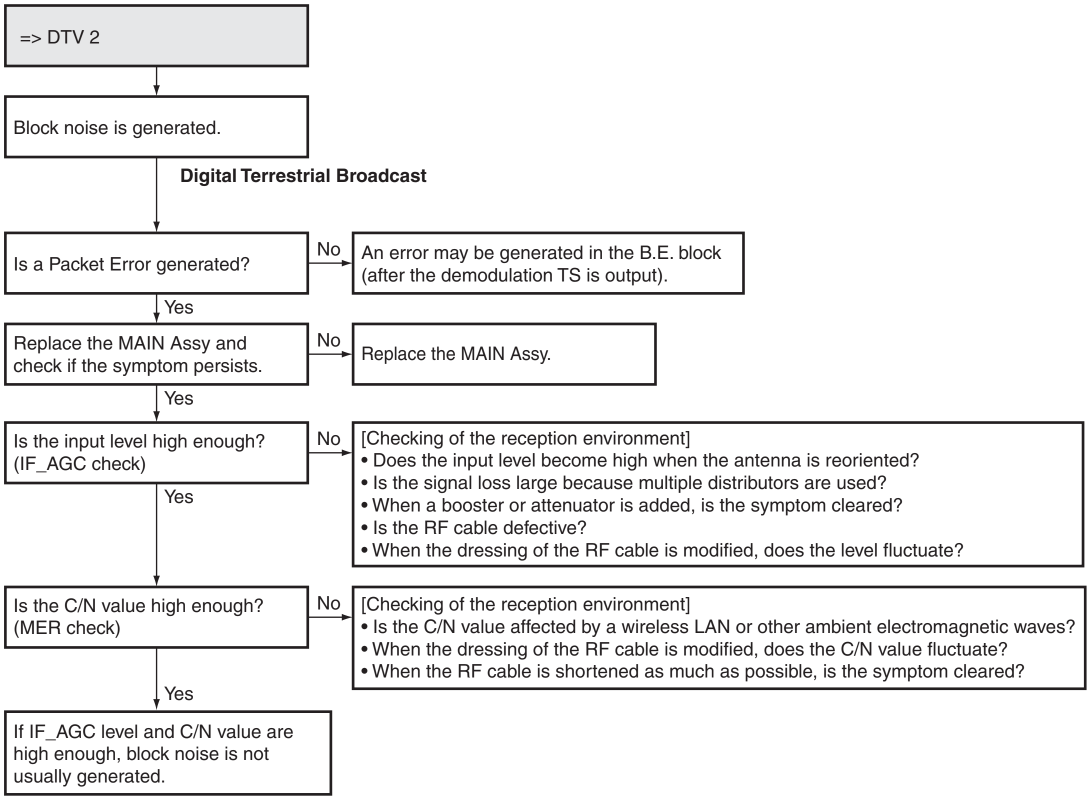
㉞ **IC4801 - pin 43 (B)**
V: 500 mV/div H: 10 µsec/div



㉟ **IC4801 - pin 54 (R)**
V: 500 mV/div H: 10 µsec/div




=> DTV1
Digital tuner signal is not displayed on the screen.
Is the input selector set to TV/DTV?
No
Select the TV/DTV selector to DTV input.
Yes
Is the symptom cleared if connection of the RF IN connector is secured or the RF cable is replaced?
Yes
Poor connection of the connectors or defective cable.
No
Is the DTV-related menu displayed on the Home Menu?
No
Replace the MAIN Assy.
Yes
With a DTV channel selected, are the level and quality of the DTV channel displayed on the Home Menu high enough?
No
Is the periphery of the terrestrial-broadcast tuner defective?
No
Replace the MAIN Assy.
Yes
Replace the MAIN Assy.

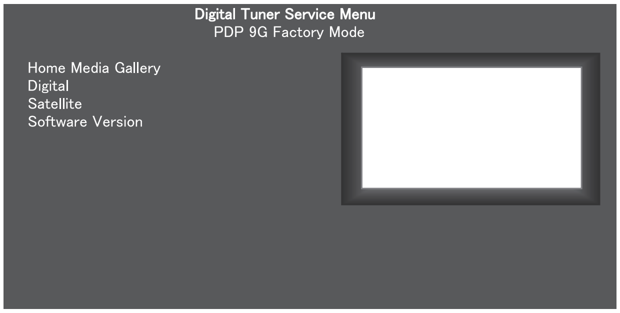

=> DTV 2
Block noise is generated.
Digital Terrestrial Broadcast
Is a Packet Error generated?
No
An error may be generated in the B.E. block (after the demodulation TS is output).
Yes
Replace the MAIN Assy and check if the symptom persists.
No
Replace the MAIN Assy.
Yes
Is the input level high enough? (IF_AGC check)
No
[Checking of the reception environment]
• Does the input level become high when the antenna is reoriented?
• Is the signal loss large because multiple distributors are used?
• When a booster or attenuator is added, is the symptom cleared?
• Is the RF cable defective?
• When the dressing of the RF cable is modified, does the level fluctuate?
Yes
Is the C/N value high enough? (MER check)
No
[Checking of the reception environment]
• Is the C/N value affected by a wireless LAN or other ambient electromagnetic waves?
• When the dressing of the RF cable is modified, does the C/N value fluctuate?
• When the RF cable is shortened as much as possible, is the symptom cleared?
Yes
If IF_AGC level and C/N value are high enough, block noise is not usually generated.

[Common to the DTVs 1 and 2]
How to Display the DTB Service Menu

As you can display the DTB Service Menu from Factory mode, you should have a remote control unit that supports Factory mode.

Step 1: Press the FACTORY key on the remote control unit to display the INFORMATION screen in Factory mode.
Step 2: Press the MUTING key on the remote control unit 3 times to display the INITIALIZE screen.
Step 3: Press the ⬇ key on the remote control unit twice so that DTB SERVICE MODE (+) is displayed at the bottom of the screen.
Step 4: Press the ENTER/SET key on the remote control so that MODE SHIFT <=> :No is displayed at the bottom of the screen.
Step 5: Press the ⬅ or ➡ key on the remote control so that MODE SHIFT <=> :YES is displayed at the bottom of the screen.
Step 6: Press the ENTER/SET key on the remote control unit for 5 sec or more to display the DTB Service Menu.

Top page of the DTB Service Menu

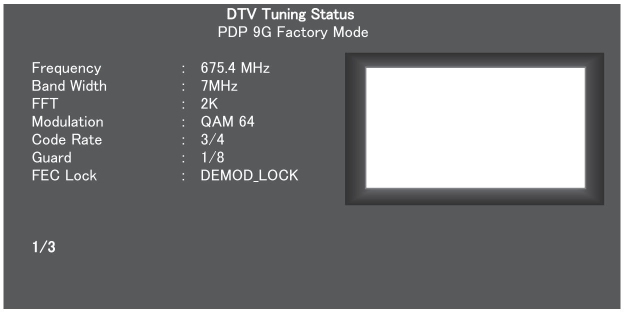


Digital : Service menu for digital terrestrial broadcast reception

■ How to Confirm the DTV Tuning Status on the Digital Tuner Service Menu

If block noise is generated, it is necessary to acquire the DTV Tuning Status for the reception frequency of the signal in which block noise is generated. For comparison, it is also necessary to acquire the DTV Tuning Status for another reception frequency of the signal in which block noise is not generated. The DTV Tuning Status page to be acquired is shown below:

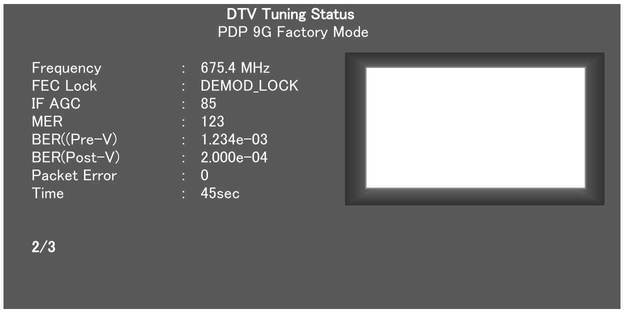
DTV Tuning Status (1/3)



```
DTV Tuning Status
PDP 9G Factory Mode

Frequency       :  675.4 MHz
Band Width      :  7MHz
FFT             :  2K
Modulation      :  QAM 64
Code Rate       :  3/4
Guard           :  1/8
FEC Lock        :  DEMOD_LOCK

1/3
```

Frequency : Frequency of the signal currently being received.
Band Width : Bandwidth of the signal currently being received.
FFT : FFT mode of the signal currently being received. (2K or 8K)
Modulation : Modulation method for the signal currently being received.
Code Rate : Code Rate of the signal currently being received.
Guard : Guard Interval of the signal currently being received
FEC Lock : Current lock status of the receiver. The available lock statuses are as shown below:
DEMOD_LOCK
FEC_LOCK
DRX_LOCK
UNLOCK

DTV Tuning Status (2/3)



```
DTV Tuning Status
PDP 9G Factory Mode

Frequency       :  675.4 MHz
FEC Lock        :  DEMOD_LOCK
IF AGC          :  85
MER             :  123
BER((Pre-V)     :  1.234e-03
BER(Post-V)     :  2.000e-04
Packet Error    :  0
Time            :  45sec

2/3
```

BER (Pre-V) : Pre-Viterbi Bit Error Rate of the signal currently being received.
BER (Post-V) : Post-Viterbi Bit Error Rate of the signal currently being received. If the value is 2.000E-04, block noise is not caused by a problem in the tuner.
Packet Error : Packet error count of the signal currently being received. If the packet error count is “0,” block noise caused by the tuner will not be generated.
Time : Measured duration of BER (Pre-V), BER (Post-V), or Packet Error. To reset the value to 0 and restart measuring, press the ⬅ or ➡ key on the remote control unit.

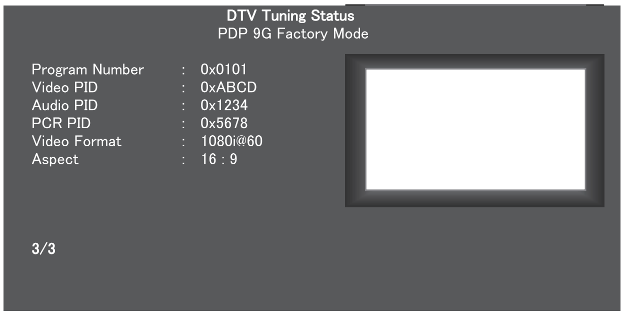
IF AGC : IF AGC level of the signal currently being received. The AGC-level limits in normal reception are shown below. Use the following values only as a guide, because they may be affected by the reception environment.

Modulation	Code Rate	Signal-level Limit in Normal Reception
QPSK	1/2	100
	2/3	100
	3/4	100
	5/6	100
	7/8	100
16QAM	1/2	100
	2/3	100
	3/4	100
	5/6	100
	7/8	100
64QAM	1/2	100
	2/3	58
	3/4	56
	5/6	55
	7/8	54

MER : Quality of the signal currently being received. The signal qualities in normal reception are shown below. Use the following values only as a guide.

Modulation	Code Rate	MER Limit in Normal Reception
QPSK	1/2	93
	2/3	85
	3/4	67
	5/6	76
	7/8	82
16QAM	1/2	98
	2/3	116
	3/4	127
	5/6	138
	7/8	145
64QAM	1/2	140
	2/3	170
	3/4	184
	5/6	197
	7/8	206

DTV Tuning Status (3/3)



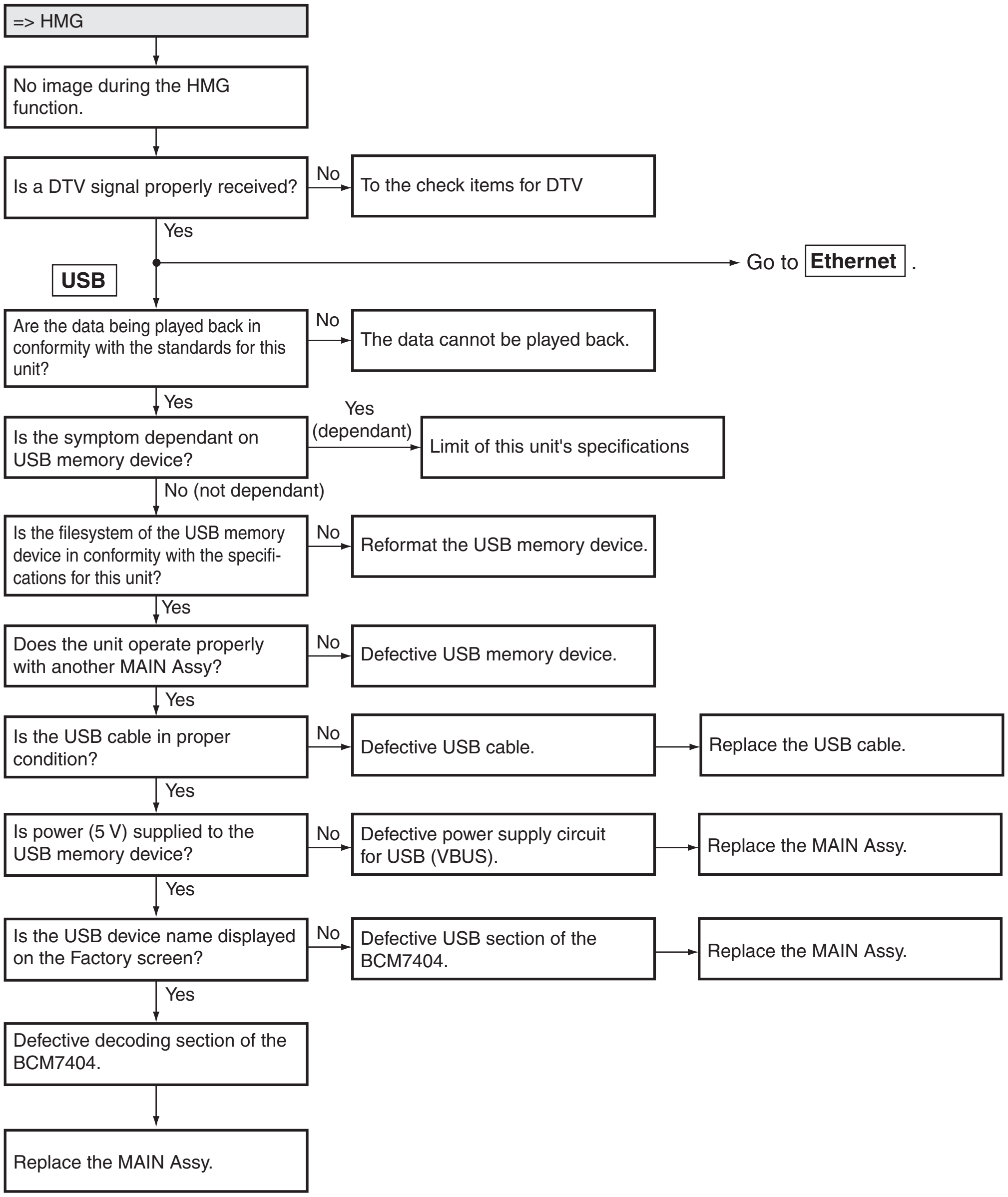
DTV Tuning Status
PDP 9G Factory Mode

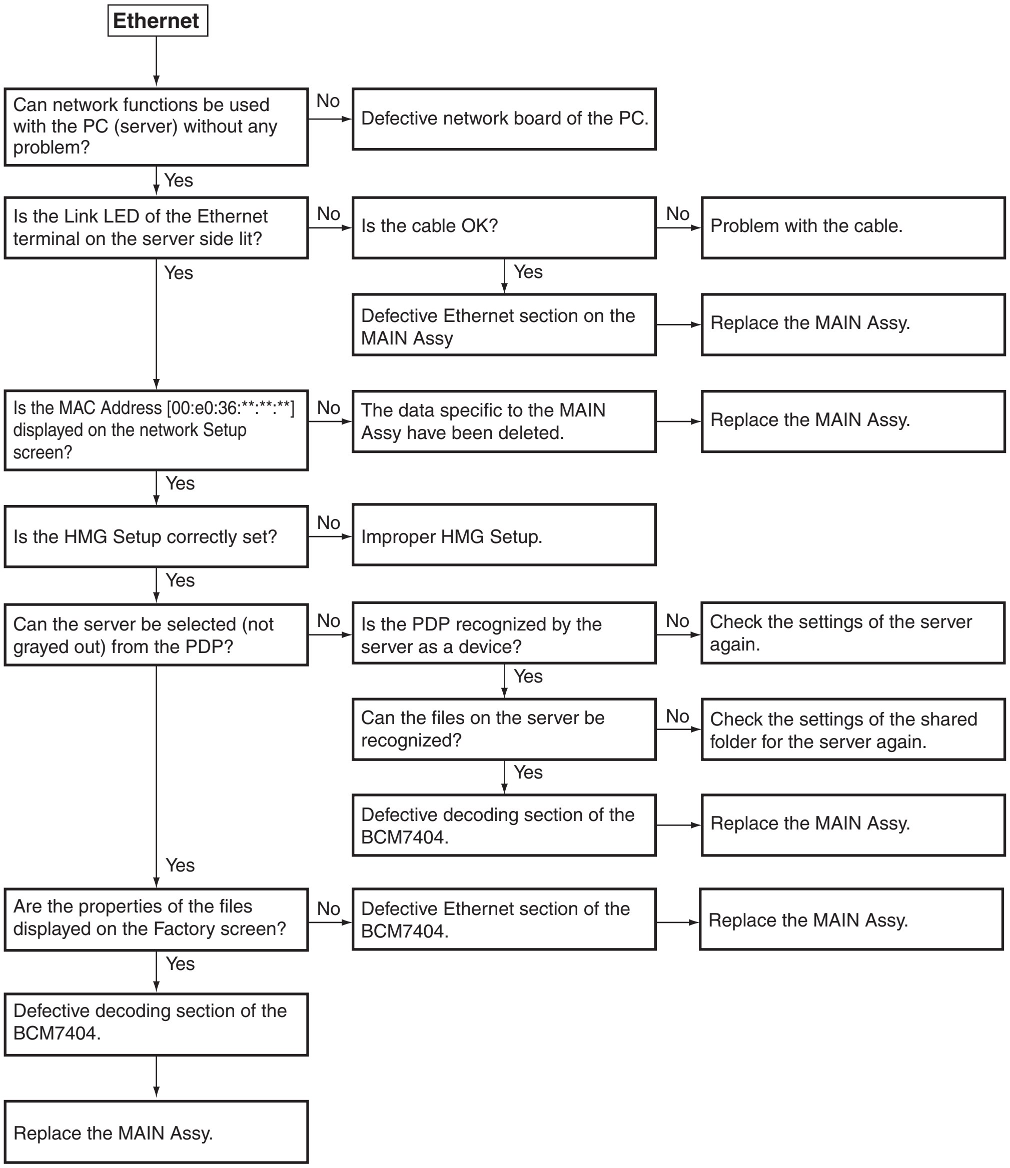
```
Program Number   :  0x0101
Video PID        :  0xABCD
Audio PID        :  0x1234
PCR PID          :  0x5678
Video Format     :  1080i@60
Aspect           :  16 : 9
```

3/3

Program Number : No. of the program currently being received.
Video PID : Video PID of the program currently being received.
Audio PID : Audio PID of the program currently being received.
PCR PID : PCR PID of the program currently being received.
Video Format : Video Format of the program currently being received.
Aspect : Aspect ratio of the program currently being received.

Flowchart of Failure Analysis for The HMG (PDP-LX509A only)


=> HMG
No image during the HMG function.
Is a DTV signal properly received?
No
To the check items for DTV
Yes
Go to Ethernet .
USB
Are the data being played back in conformity with the standards for this unit?
No
The data cannot be played back.
Yes
Is the symptom dependant on USB memory device?
Yes (dependant)
Limit of this unit's specifications
No (not dependant)
Is the filesystem of the USB memory device in conformity with the specifi-cations for this unit?
No
Reformat the USB memory device.
Yes
Does the unit operate properly with another MAIN Assy?
No
Defective USB memory device.
Yes
Is the USB cable in proper condition?
No
Defective USB cable.
Replace the USB cable.
Yes
Is power (5 V) supplied to the USB memory device?
No
Defective power supply circuit for USB (VBUS).
Replace the MAIN Assy.
Yes
Is the USB device name displayed on the Factory screen?
No
Defective USB section of the BCM7404.
Replace the MAIN Assy.
Yes
Defective decoding section of the BCM7404.
Replace the MAIN Assy.


Ethernet
Can network functions be used with the PC (server) without any problem?
No
Defective network board of the PC.
Yes
Is the Link LED of the Ethernet terminal on the server side lit?
No
Is the cable OK?
No
Problem with the cable.
Yes
Defective Ethernet section on the MAIN Assy
Replace the MAIN Assy.
Yes
Is the MAC Address [00:e0:36:**:**:**] displayed on the network Setup screen?
No
The data specific to the MAIN Assy have been deleted.
Replace the MAIN Assy.
Yes
Is the HMG Setup correctly set?
No
Improper HMG Setup.
Yes
Can the server be selected (not grayed out) from the PDP?
No
Is the PDP recognized by the server as a device?
No
Check the settings of the server again.
Yes
Can the files on the server be recognized?
No
Check the settings of the shared folder for the server again.
Yes
Defective decoding section of the BCM7404.
Replace the MAIN Assy.
Yes
Are the properties of the files displayed on the Factory screen?
No
Defective Ethernet section of the BCM7404.
Replace the MAIN Assy.
Yes
Defective decoding section of the BCM7404.
Replace the MAIN Assy.

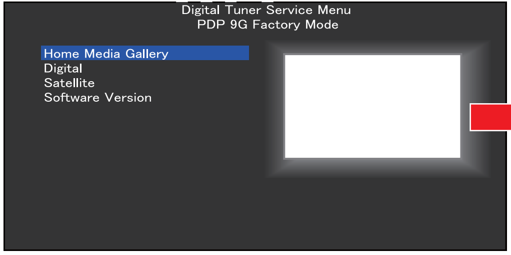
[HMG] How to enter DTB Service menu

Note: Use the remote control unit that supports Factory mode, because the DTB Service menu is accessible from Factory mode.

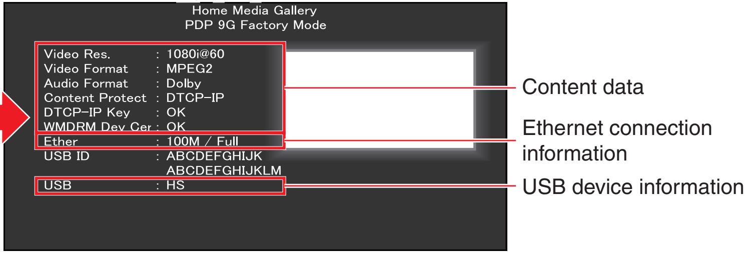
Step 1: Press the FACTORY key on the remote control unit to display the INFORMATION screen of Factory mode.
Step 2: Press the MUTING key on the remote control unit 3 times to display the INITIALIZE screen.
Step 3: Press the ⬇ key on the remote control unit twice to display the “DTB SERVICE MODE (+)” indication at the bottom of the screen.
Step 4: Press the ENTER/SET key on the remote control unit to display the “MODE SHIFT <=>: No” indication at the bottom of the screen.
Step 5: Press the ⬅ or ➡ key on the remote control unit until the “MODE SHIFT <=>: YES” indication is displayed at the bottom of the screen.
Step 6: Press and hold the ENTER/SET key on the remote control unit pressed for 5 seconds or more to activate DTB Service menu.

The Home Media Gallery (HMG) Service menu is indicated below:

Top page of DTB Service menu


Digital Tuner Service Menu
PDP 9G Factory Mode
Home Media Gallery
Digital
Satellite
Software Version

Home Media Gallery Service menu

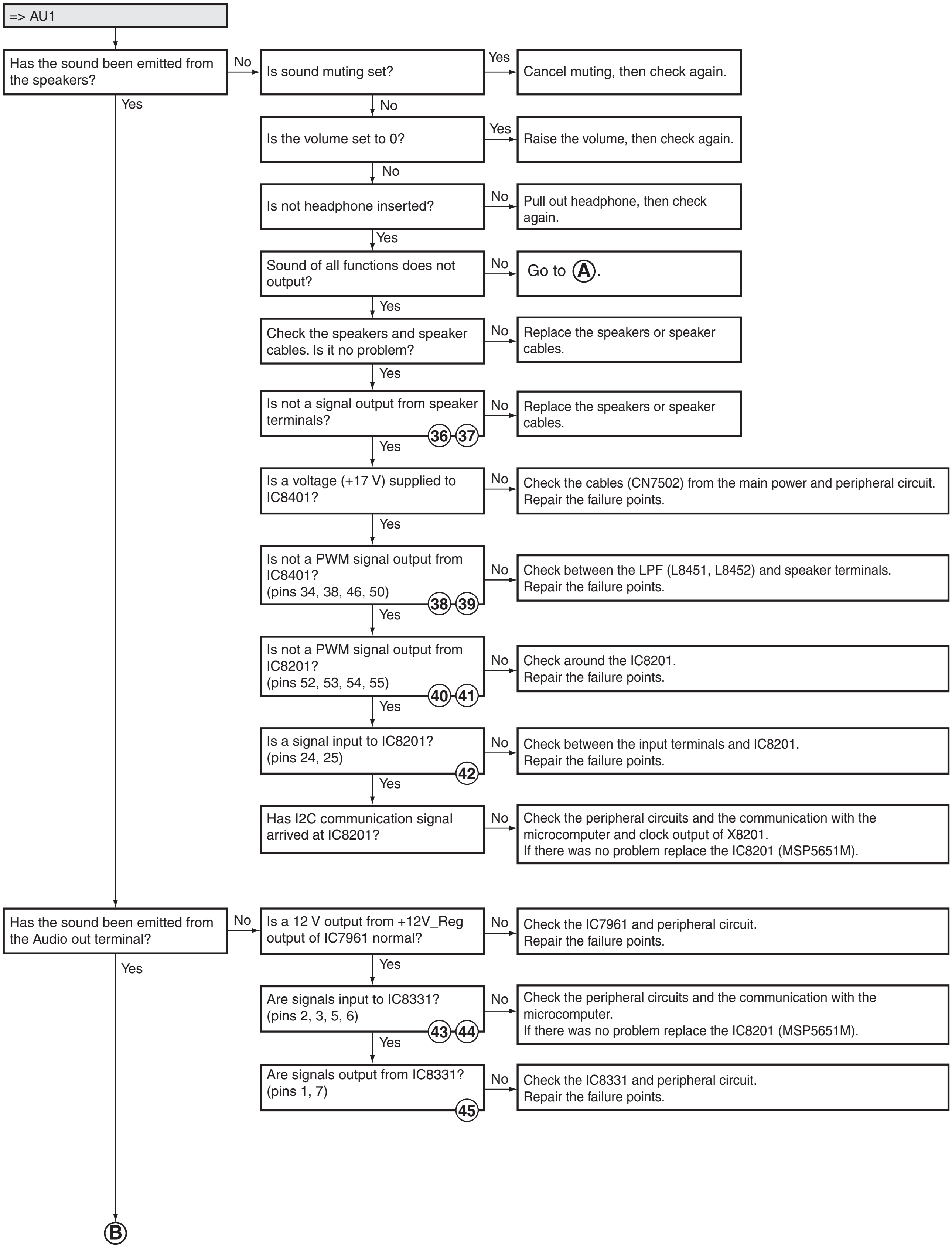

Home Media Gallery
PDP 9G Factory Mode

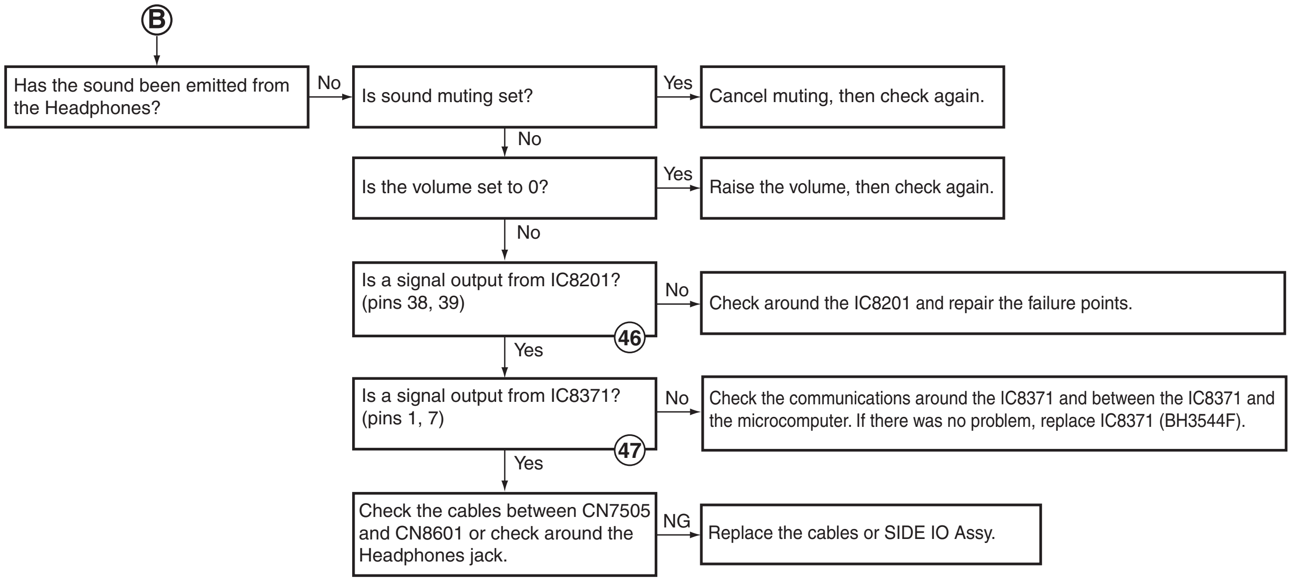
```
Video Res.       : 1080i@60
Video Format     : MPEG2
Audio Format     : Dolby
Content Protect  : DTCP-IP
DTCP-IP Key      : OK
WMDRM Dev Cer    : OK
Ether            : 100M / Full
USB ID           : ABCDEFGHIJK
                   ABCDEFGHIJKLM
USB              : HS
```

Content data
Ethernet connection information
USB device information

[7] AUDIO SYSTEM

Flowchart of Failure Analysis for The Audio System

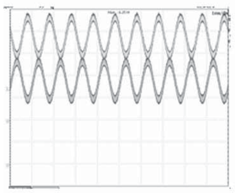

=> AU1
Has the sound been emitted from the speakers?
No
Is sound muting set?
Yes
Cancel muting, then check again.
No
Is the volume set to 0?
Yes
Raise the volume, then check again.
No
Is not headphone inserted?
No
Pull out headphone, then check again.
Yes
Sound of all functions does not output?
No
Go to Ⓐ.
Yes
Check the speakers and speaker cables. Is it no problem?
No
Replace the speakers or speaker cables.
Yes
Is not a signal output from speaker terminals? ㊱ ㊲
No
Replace the speakers or speaker cables.
Yes
Is a voltage (+17 V) supplied to IC8401?
No
Check the cables (CN7502) from the main power and peripheral circuit. Repair the failure points.
Yes
Is not a PWM signal output from IC8401? (pins 34, 38, 46, 50) ㊳ ㊴
No
Check between the LPF (L8451, L8452) and speaker terminals. Repair the failure points.
Yes
Is not a PWM signal output from IC8201? (pins 52, 53, 54, 55) ㊵ ㊶
No
Check around the IC8201. Repair the failure points.
Yes
Is a signal input to IC8201? (pins 24, 25) ㊷
No
Check between the input terminals and IC8201. Repair the failure points.
Yes
Has I2C communication signal arrived at IC8201?
No
Check the peripheral circuits and the communication with the microcomputer and clock output of X8201. If there was no problem replace the IC8201 (MSP5651M).
Yes
Has the sound been emitted from the Audio out terminal?
No
Is a 12 V output from +12V_Reg output of IC7961 normal?
No
Check the IC7961 and peripheral circuit. Repair the failure points.
Yes
Are signals input to IC8331? (pins 2, 3, 5, 6) ㊸ ㊹
No
Check the peripheral circuits and the communication with the microcomputer. If there was no problem replace the IC8201 (MSP5651M).
Yes
Are signals output from IC8331? (pins 1, 7) ㊺
No
Check the IC8331 and peripheral circuit. Repair the failure points.
Yes
Ⓑ


B
Has the sound been emitted from the Headphones?
No
Is sound muting set?
Yes
Cancel muting, then check again.
No
Is the volume set to 0?
Yes
Raise the volume, then check again.
No
Is a signal output from IC8201? (pins 38, 39)
46
No
Check around the IC8201 and repair the failure points.
Yes
Is a signal output from IC8371? (pins 1, 7)
47
No
Check the communications around the IC8371 and between the IC8371 and the microcomputer. If there was no problem, replace IC8371 (BH3544F).
Yes
Check the cables between CN7505 and CN8601 or check around the Headphones jack.
NG
Replace the cables or SIDE IO Assy.

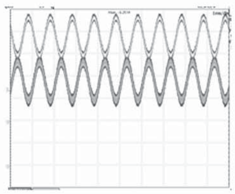
• Waveforms

Input signal: L/R 1 kHz, 0.5 Vrms (VOL 30)

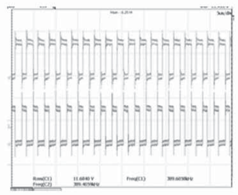
㊱ **JA8551 - pins 1, 2**
V: 2 V/div H: 1 mS/div



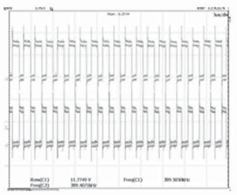
㊲ **JA8551 - pins 3, 4**
V: 2 V/div H: 1 mS/div



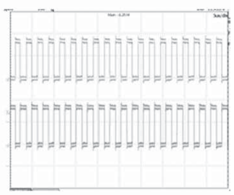
㊳ **IC8401 - pins 34, 38**
V: 10 V/div H: 5 µS/div



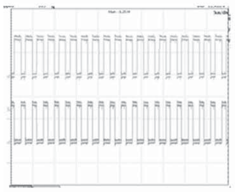
㊴ **IC8401 - pins 46, 50**
V: 10 V/div H: 5 µS/div



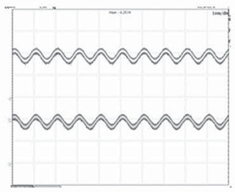
㊵ **IC8201 - pins 52, 53**
V: 2 V/div H: 5 µS/div



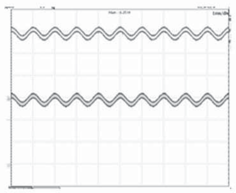
㊶ **IC8201 - pins 54, 55**
V: 2 V/div H: 5 µS/div



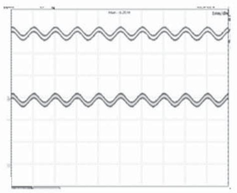
㊷ **IC8201 - pins 24 to 27, 30 to 37**
V: 2 V/div H: 1 mS/div



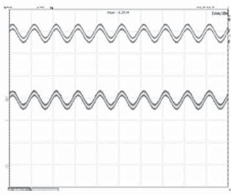
㊸ **IC8331 - pins 2, 3**
V: 2 V/div H: 1 mS/div



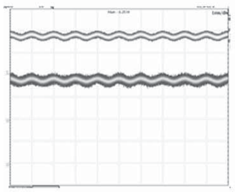
㊹ **IC8331 - pins 5, 6**
V: 2 V/div H: 1 mS/div



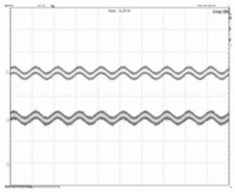
㊺ **IC8331 - pins 1, 7**
V: 2 V/div H: 1 mS/div

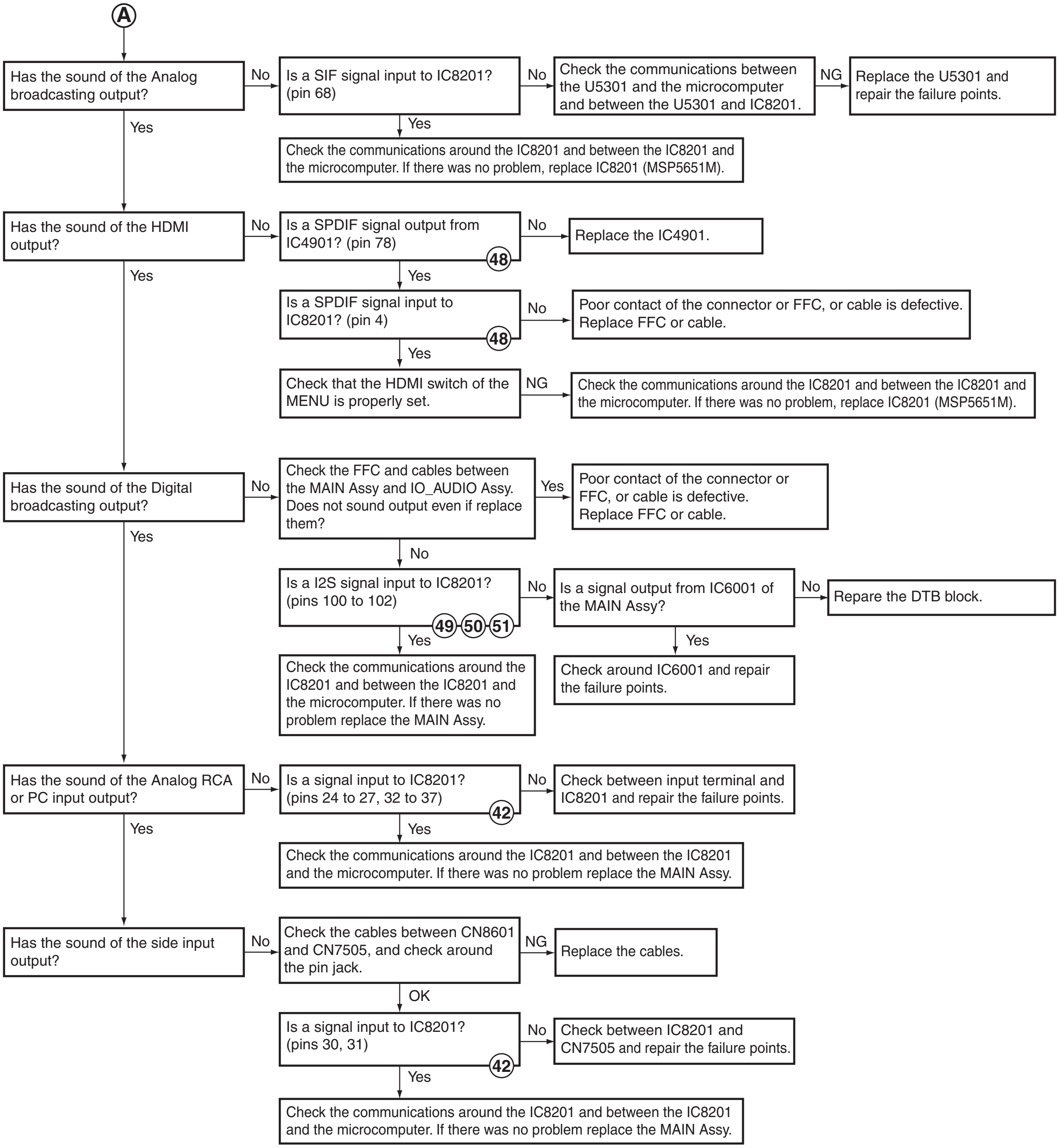


㊻ **IC8201 - pins 38, 39**
V: 1 V/div H: 1 mS/div



㊼ **IC8371 - pins 1, 7**
V: 1 V/div H: 1 mS/div

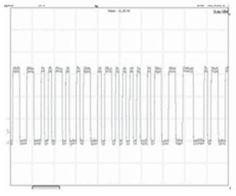



A
Has the sound of the Analog broadcasting output?
No
Is a SIF signal input to IC8201? (pin 68)
No
Check the communications between the U5301 and the microcomputer and between the U5301 and IC8201.
NG
Replace the U5301 and repair the failure points.
Yes
Check the communications around the IC8201 and between the IC8201 and the microcomputer. If there was no problem, replace IC8201 (MSP5651M).
Yes
Has the sound of the HDMI output?
No
Is a SPDIF signal output from IC4901? (pin 78)
48
No
Replace the IC4901.
Yes
Is a SPDIF signal input to IC8201? (pin 4)
48
No
Poor contact of the connector or FFC, or cable is defective. Replace FFC or cable.
Yes
Check that the HDMI switch of the MENU is properly set.
NG
Check the communications around the IC8201 and between the IC8201 and the microcomputer. If there was no problem, replace IC8201 (MSP5651M).
Yes
Has the sound of the Digital broadcasting output?
No
Check the FFC and cables between the MAIN Assy and IO_AUDIO Assy. Does not sound output even if replace them?
Yes
Poor contact of the connector or FFC, or cable is defective. Replace FFC or cable.
No
Is a I2S signal input to IC8201? (pins 100 to 102)
49 50 51
No
Is a signal output from IC6001 of the MAIN Assy?
No
Repare the DTB block.
Yes
Check the communications around the IC8201 and between the IC8201 and the microcomputer. If there was no problem replace the MAIN Assy.
Yes
Check around IC6001 and repair the failure points.
Yes
Has the sound of the Analog RCA or PC input output?
No
Is a signal input to IC8201? (pins 24 to 27, 32 to 37)
42
No
Check between input terminal and IC8201 and repair the failure points.
Yes
Check the communications around the IC8201 and between the IC8201 and the microcomputer. If there was no problem replace the MAIN Assy.
Yes
Has the sound of the side input output?
No
Check the cables between CN8601 and CN7505, and check around the pin jack.
NG
Replace the cables.
OK
Is a signal input to IC8201? (pins 30, 31)
42
No
Check between IC8201 and CN7505 and repair the failure points.
Yes
Check the communications around the IC8201 and between the IC8201 and the microcomputer. If there was no problem replace the MAIN Assy.

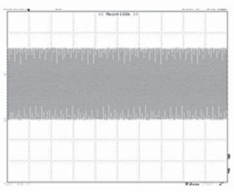
• Waveforms

Input signal: L/R 1 kHz, 0.5 Vrms (VOL 30)

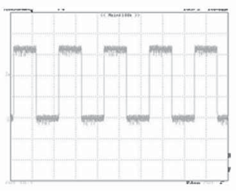
(48) IC4901 - pin 78, IC8201- pin4
V: 1 V/div H: 1 µS/div



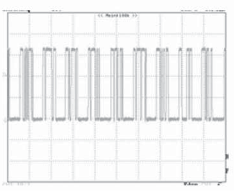
(49) IC8201 - pin 100
V: 1 V/div H: 10 µS/div



(50) IC8201 - pin 101
V: 1 V/div H: 10 µS/div

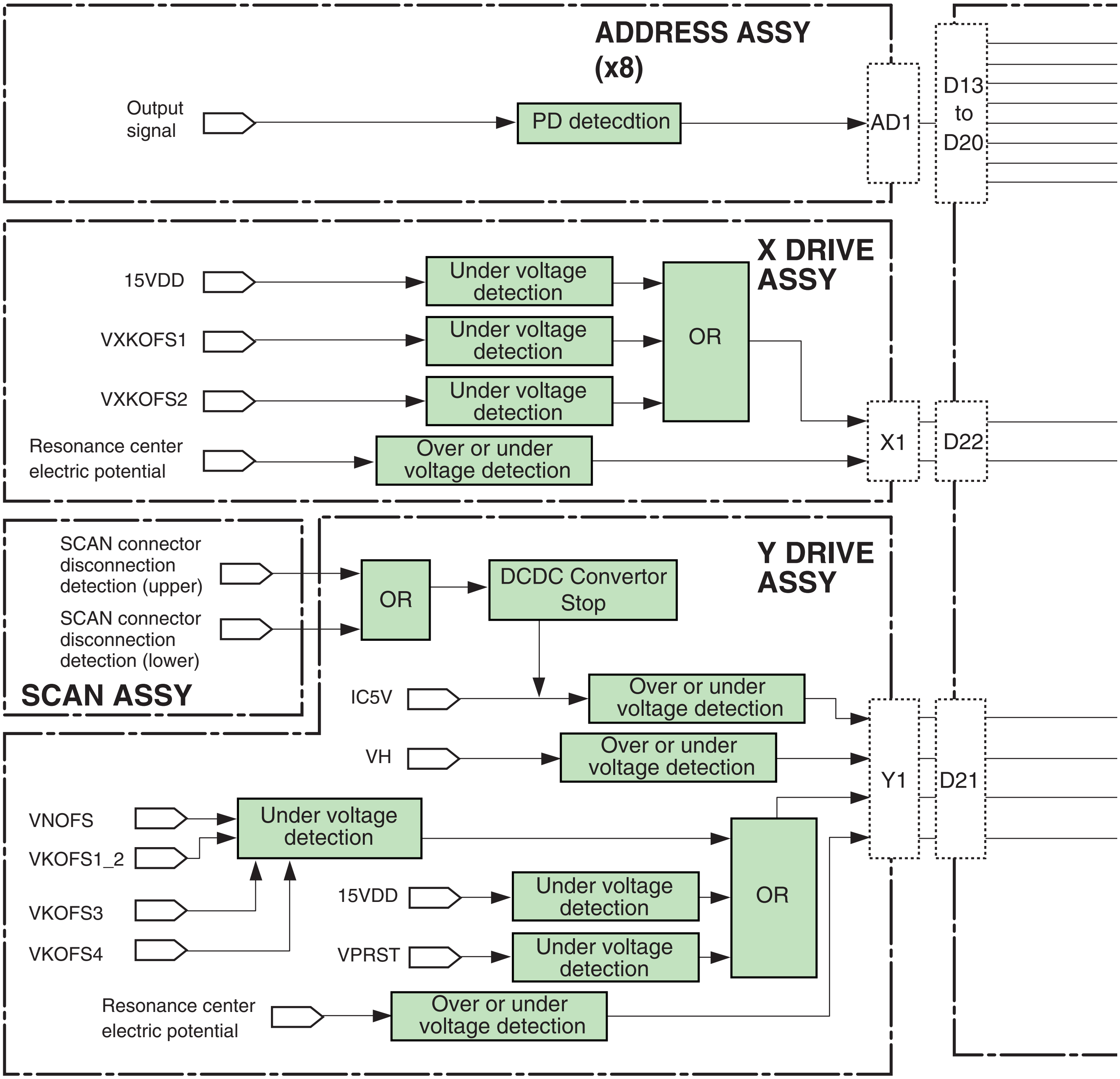


(51) IC8201 - pin 102
V: 1 V/div H: 10 µS/div

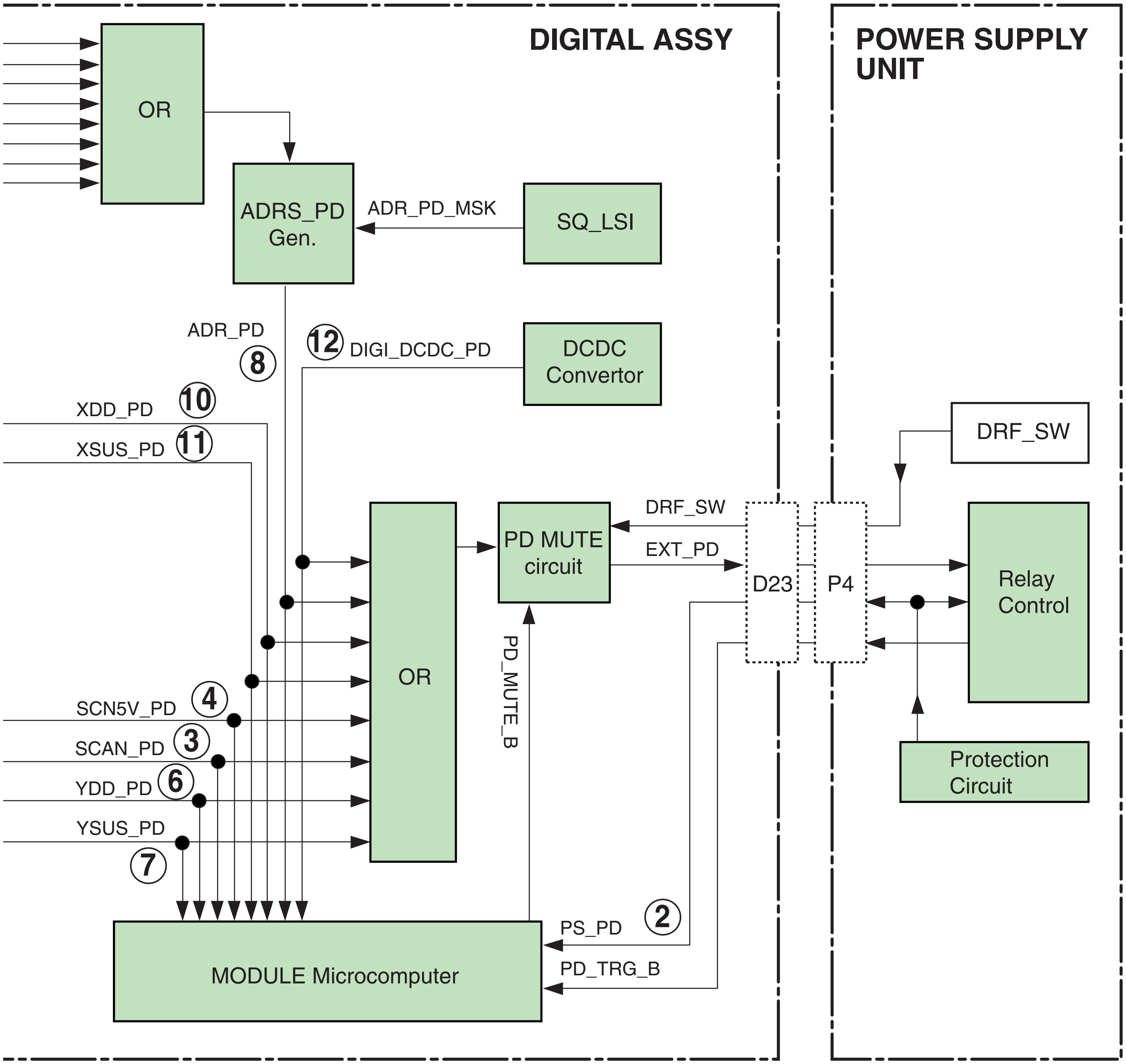


5.3 DIAGNOSIS OF PD (POWER-DOWN)

[1] BLOCK DIAGRAM OF THE POWER-DOWN SIGNAL


ADDRESS ASSY
(x8)
Output signal
PD detecdtion
AD1
D13 to D20
X DRIVE ASSY
15VDD
VXKOFS1
VXKOFS2
Under voltage detection
Under voltage detection
Under voltage detection
OR
Resonance center electric potential
Over or under voltage detection
X1
D22
SCAN connector disconnection detection (upper)
SCAN connector disconnection detection (lower)
SCAN ASSY
OR
DCDC Convertor Stop
Y DRIVE ASSY
IC5V
Over or under voltage detection
VH
Over or under voltage detection
Y1
D21
VNOFS
VKOFS1_2
VKOFS3
VKOFS4
Under voltage detection
15VDD
Under voltage detection
VPRST
Under voltage detection
OR
Resonance center electric potential
Over or under voltage detection

Note:
The figures ② to ⑫ indicate the number of times the Red LED flashes when power-down occurs in the corresponding route.


DIGITAL ASSY
POWER SUPPLY UNIT
OR
ADRS_PD Gen.
ADR_PD_MSK
SQ_LSI
ADR_PD
⑧
⑫
DIGI_DCDC_PD
DCDC Convertor
XDD_PD
⑩
XSUS_PD
⑪
DRF_SW
DRF_SW
EXT_PD
PD MUTE circuit
OR
D23
P4
Relay Control
PD_MUTE_B
SCN5V_PD
④
SCAN_PD
③
YDD_PD
⑥
YSUS_PD
⑦
Protection Circuit
PS_PD
②
PD_TRG_B
MODULE Microcomputer

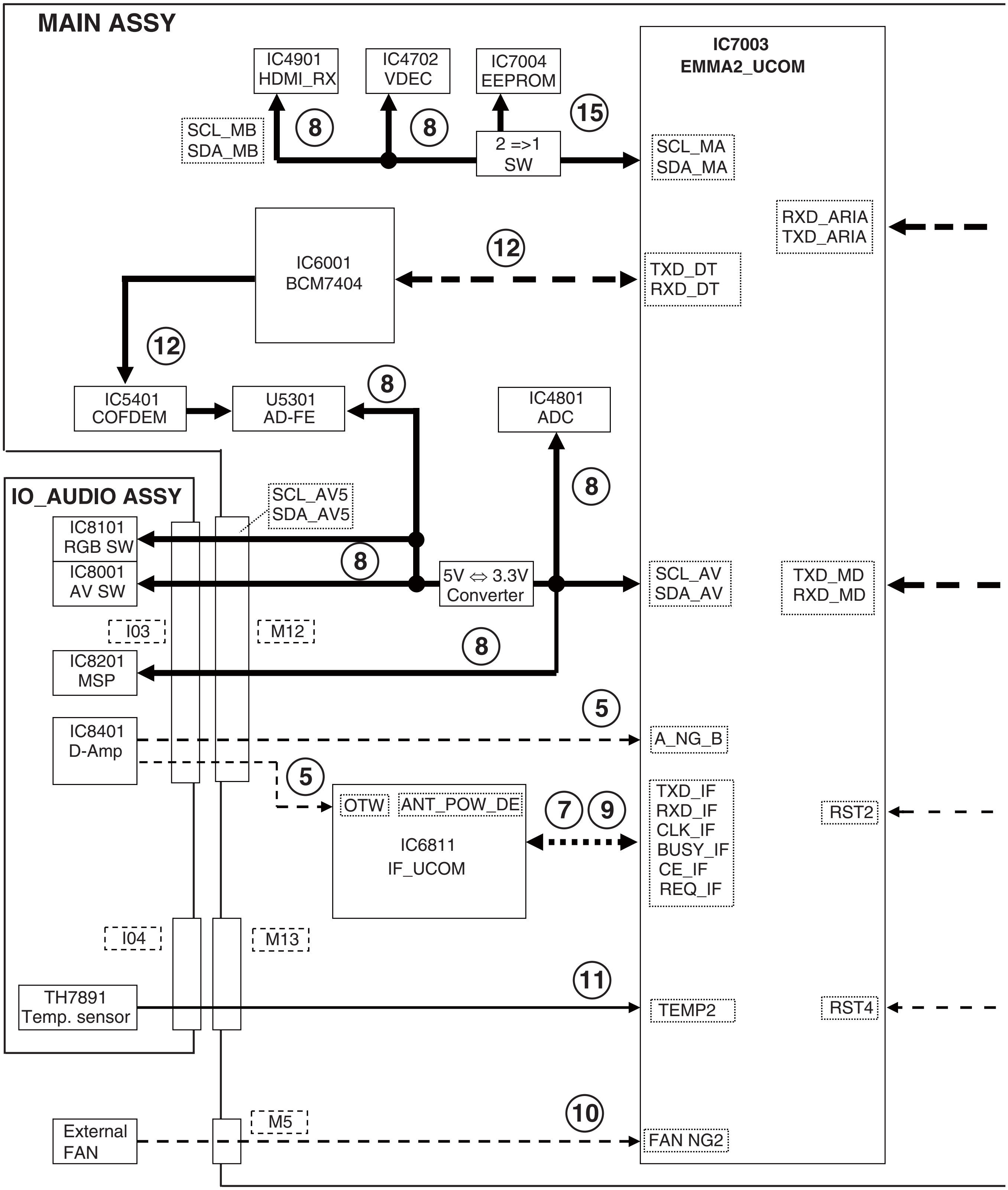
[2] PD (POWER-DOWN) DIAGNOSIS OF FAILURE ANALYSIS

Red LED Flashing Count	Factory History Display	Defective Assy	PD Outline	Checkpoint	
2	P-PWR	POWER SUPPLY Unit	Each PD in the POWER SUPPLY Unit		
			Connector disconnection	Connector [P14][P15] (60”only)	
		X DRIVE Assy	VSUS under voltage protection	X SUS block	
		Y DRIVE Assy	VSUS under voltage protection	Y SUS block	
		ADDRESS Assy	Connector disconnection	Connector [AD1]	
		DIGITAL Assy	Connector disconnection	Connector [D13] to [D20]	
3	SCAN	SCAN Assy	VH over or under voltage protection	SCAN IC	
		X DRIVE Assy		X SUS block	
		Y DRIVE Assy		Y SUS block	
				VH DC/DC	
				OFFSET block	
			Connector disconnection	Connector [Y1][Y2]	
		DIGITAL Assy	Connector disconnection	Connector [D21]	
4	SCN5V	SCAN Assy	Connector disconnection	Connector [SA1][SB1][SB2][SC1][SC2][SD1]	
			IC5V over or under voltage protection	SCAN IC	
		Y DRIVE Assy		IC5V DC/DC	
6	Y-DCDC	Y DRIVE Assy	VNOFS under voltage protection	Y MSK block	
				NOFS block	
				VNOFS DC/DC	
			VYPRST under voltage protection	VPRST regulaotr	
				PR-U block	
			15VDD under voltage protection	15V DC/DC	
				SOFT-G block	
			VKOFS1,2 under voltage protection	Y MSK block	
				KNOFS2 block	
				VYKOFS1, 2 regulaotr	
			VKOFS3 under voltage protection	Y MSK block	
				VYKOFS3 regulaotr	
			VKOFS4 under voltage protection	Y MSK block	
				KNOFS4 block	
				VYKOFS4 regulaotr	
7	Y-SUS	Y DRIVE Assy	Over or under voltage protection of the center electric potential	Y resonance block	
		DIGITAL Assy	SQ_LSI does not operate	SEQ_LSI (Sync input, output waveform)	
8	ADRS	ADDRESS Assy	VADR under voltage protection	Address resonance block	
				TCP	
			Connector disconnection	Connector [AD1][AD2]	
		DIGITAL Assy	Connector disconnection	Connector [D13] to [D20]	
		Y DRIVE Assy	Connector disconnection	Connector [Y2][Y5][Y6]	
		X DRIVE Assy	Connector disconnection	Connector [X2][X3][X4]	
		POWER SUPPLY Unit	Connector disconnection	Connector [P1][P2]	
10	X-DCDC	X DRIVE Assy	Connector disconnection	Connector [X2]	
			15VDD under voltage protection	X SUS block	
				15V DC/DC	
			VXKOFS1 under voltage protection	VXKOFS1 regulaotr	
				X OFFSET block	
			VXKOFS2 under voltage protection	VXKOFS2 regulaotr	
				X OFFSET block	
11	X-SUS	X DRIVE Assy	Over or under voltage protection of the center electric potential	X resonance block	
12	D-DCDC	DIGITAL Assy	3.3V,2.5V,1.1V Over voltage/under voltage/overcurrent protection	DC/DC controlo IC	
				DC/DC block	
15	UNKNOW	POWER SUPPLY Unit	Connector disconnection	Connector [P4]	
		DIGITAL Assy	Connector disconnection	Connector [D23]	
			ModuleUcom can not detection	Each PD line of ModuleUcom	

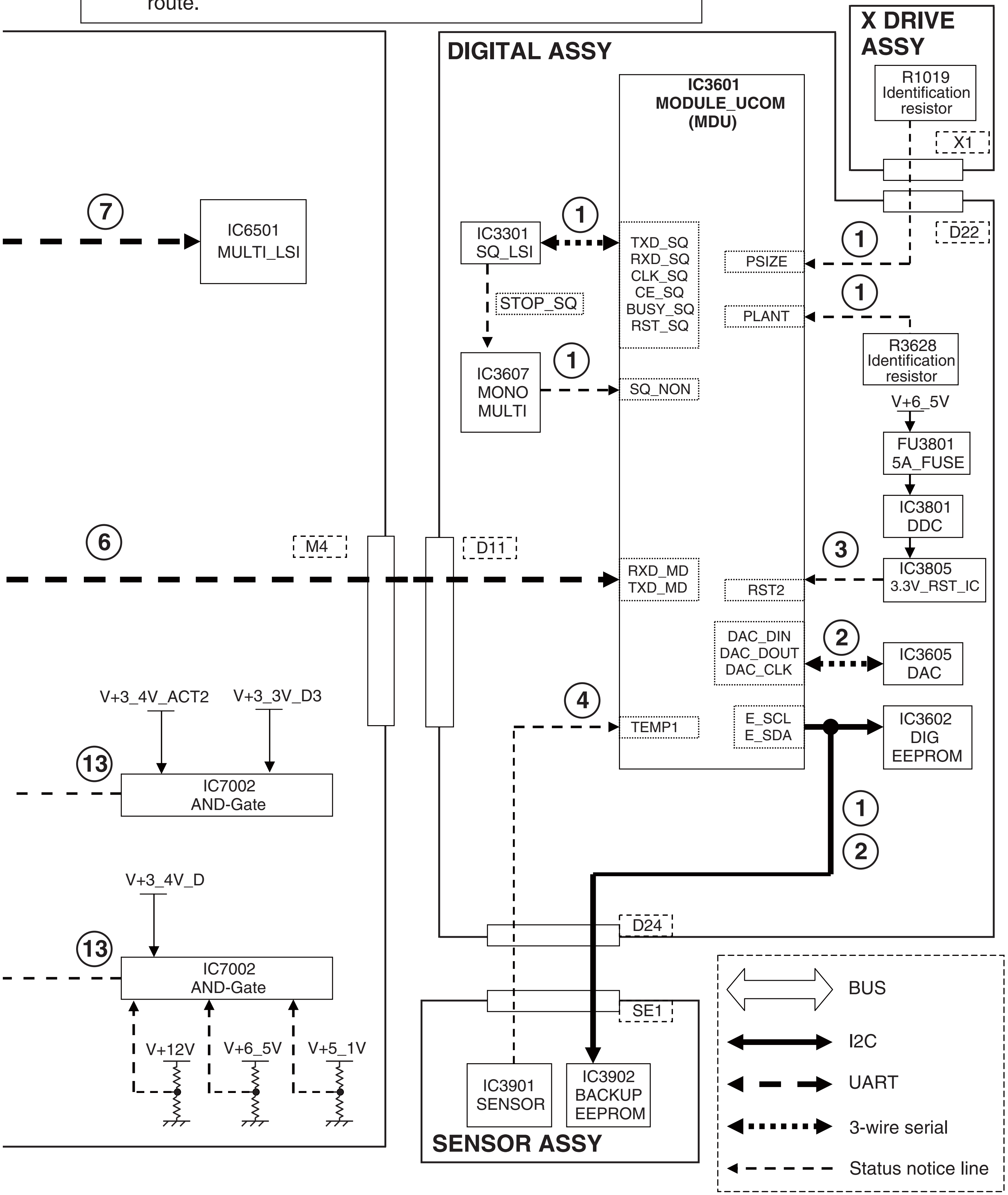
Possible Defective Part	Remarks
	The POWER SUPPLY Unit of 60 inches model is a structure of the two parts.
Q1218,Q1219,Q1221-Q1223,Q1226	VSUS-SUSOUT and SUSOUT-SUSGND are short-circuited.
Q2217-Q2224	VSUS-SUSOUT and SUSOUT-SUSGND are short-circuited.
each SCAN IC	The abnormality of the SCAN IC
Q1218,Q1219,Q1221-Q1223,Q1226	VSUS-SUSOUT and SUSOUT-SUSGND are short-circuited.
Q2217-Q2219,Q2221-Q2223	VSUS-SUSOUT and SUSOUT-SUSGND are short-circuited.
IC2601,IC2603,IC2604	
Q2401,Q2402	KNOFS1 and KNOFS3 are short-circuited.
	[SB2][SC1][SC2][SD1] are 60 inches model only.
each SCAN IC	
Q2764,D2768,R2764	
Q2321-Q2326,Q2328-Q2331,Q2333,Q2334	L MSK is short-circuited.
Q2424,Q2429	NOFS is short-circuited.
D2606,Q2709-Q2711	
Q2604,Q2605,IC2602	
Q2418	PR-U is short-circuited.
Q2662,R2669,L2301,R2335	
Q2427	SOFT-G is short-circuited.
Q2321-Q2326,Q2328-Q2331,Q2333,Q2334	L MSK is short-circuited.
Q2430	KNOFS2 is short-circuited.
Q2702,Q2705,R2714	
Q2321-Q2326,Q2328-Q2331,Q2333,Q2334	L MSK is short-circuited.
Q2703,Q2706,R2715	
Q2321-Q2326,Q2328-Q2331,Q2333,Q2334	L MSK is short-circuited.
Q2432	KNOFS4 is short-circuited.
Q2704,Q2707,R2717	
Q2106-Q2109,Q2111,Q2113,D2104-D2107	
IC3301,IC3302	The history of SD1 remains
Q1711,Q1721,Q1731,Q1741,Q1911,Q1921,Q1931,D1711,D1721,D1731,D1741,D1911,D1921,D1931	
TCP (IC1651,IC1661,IC1671,IC1681,IC1851,IC1861,IC1871)	When the TCP is damaged, replace the panel.
	Ref No. of L Assy (6 pieces) and S Assy (2 pieces) are common use.
L1201,R1217	
Q1402	
Q1405,Q1406	
Q1302,Q1304	
Q1403,Q1404	
Q1301,Q1303	
Q1108,Q1112,Q1116,Q1119	
IC3801	
Q3841,Q3861,Q3881,L3841,L3861,L3881 R3820,R3848,R3868,R3888	
	EXT_PD line : Open
	EXT_PD line : Open
	It becomes "UNKNOW" except above-mentioned PD detection condition.

5.4 DIAGNOSIS OF SD (SHUTDOWN)

[1] BLOCK DIAGRAM OF THE SHUTDOWN SIGNAL


MAIN ASSY
IC4901
HDMI_RX
IC4702
VDEC
IC7004
EEPROM
⑮
SCL_MB
SDA_MB
⑧
⑧
2 =>1
SW
IC7003
EMMA2_UCOM
SCL_MA
SDA_MA
RXD_ARIA
TXD_ARIA
IC6001
BCM7404
⑫
TXD_DT
RXD_DT
⑫
IC5401
COFDEM
U5301
AD-FE
⑧
IC4801
ADC
IO_AUDIO ASSY
SCL_AV5
SDA_AV5
⑧
IC8101
RGB SW
IC8001
AV SW
⑧
5V ⇔ 3.3V
Converter
SCL_AV
SDA_AV
TXD_MD
RXD_MD
I03
M12
⑧
IC8201
MSP
⑤
IC8401
D-Amp
A_NG_B
⑤
OTW
ANT_POW_DE
IC6811
IF_UCOM
⑦
⑨
TXD_IF
RXD_IF
CLK_IF
BUSY_IF
CE_IF
REQ_IF
RST2
I04
M13
⑪
TH7891
Temp. sensor
TEMP2
RST4
M5
⑩
External
FAN
FAN NG2

Note : The figures ① to ⑮ indicate the number of times the Blue LED flashes when shut-down occurs in the corresponding route.


X DRIVE ASSY
R1019 Identification resistor
X1
DIGITAL ASSY
IC3601 MODULE_UCOM (MDU)
D22
⑦
IC6501 MULTI_LSI
①
IC3301 SQ_LSI
TXD_SQ
RXD_SQ
CLK_SQ
CE_SQ
BUSY_SQ
RST_SQ
STOP_SQ
①
PSIZE
①
PLANT
R3628 Identification resistor
①
IC3607 MONO MULTI
SQ_NON
V+6_5V
FU3801 5A_FUSE
IC3801 DDC
⑥
M4
D11
RXD_MD
TXD_MD
③
RST2
IC3805 3.3V_RST_IC
DAC_DIN
DAC_DOUT
DAC_CLK
②
IC3605 DAC
V+3_4V_ACT2
V+3_3V_D3
④
TEMP1
E_SCL
E_SDA
IC3602 DIG EEPROM
⑬
IC7002 AND-Gate
①
②
V+3_4V_D
D24
⑬
IC7002 AND-Gate
SE1
V+12V
V+6_5V
V+5_1V
IC3901 SENSOR
IC3902 BACKUP EEPROM
SENSOR ASSY
BUS
I2C
UART
3-wire serial
Status notice line

[2] SD (SHUTDOWN) DIAGNOSIS

Frequency of LED Flashing (*1)		Major Type	Detailed Type	Log Indication in Factory Mode		
				MAIN	SUB	
Blue 1	Orange 1	Abnormality in the Sequence LSI	Communication error	SQ-LSI	RTRY	
	Orange 2		Drive stop		SQNO	
	Orange 3		Busy		BUSY	
	Orange 4		Version mismatching (hardware, software)		VER-HS	
	Orange 5		Version mismatching (hardware, backup memory)		VER-HM	
	Orange 6		Version mismatching (hardware, DIGITAL memory)		VER-HI	
Blue 2	Orange 1	Failure in MDU device communication	Digital EEPROM	MD-DEV	EEPROM	
	Orange 2		Backup EEPROM		BACKUP	
	Orange 3		DAC IC		DAC	
Blue 3	Orange 1	Abnormality in RST2 power decrease	–	RST2	–	
	Orange 2					
Blue 4	Orange 1	Abnormality in panel temperature	Abnormality in high temperature	TMP-NG	TMP-H	
	Orange 2		Abnormality in low temperature		TMP-L	
Blue 5	Orange 1	Short-circuiting of the speakers Overcurrent detection D-AMP temperature abnormality	–	AUDIO	AUDIO	
	Orange 2				OTW	
Blue 6	–	Failure in communication with the module microcomputer	–	MODULE	–	
Blue 7	Orange 1	Failure in main microcomputer 3-wire serial communication	IF microcomputer	MA-3L	IF	
	Orange 2		MULTI		MULTI	
Blue 8	Orange 1	Failure in IIC communication with the main microcomputer	Tuner 1	MA-IIC	FE1	
	Orange 2		MSP/MAP		MSPMAP	
	Orange 3		AV switch		AV-SW	
	Orange 4		RGB switch		RGB-SW	
	Orange 5		Main VDEC		VDEC	
	Orange 6		VDEC SDRAM		SDRAM	
	Orange 7		AD/PLL		ADC	
	Orange 8		HDMI		HDMI	
Blue 9	–	Failure in communication with the main microcomputer	–	MAIN	–	
Blue 10	Orange 2	Abnormality in FAN	FAN2	FAN	FAN2	
Blue 11	–	High temperature of the unit	–	TEMP2	–	
Blue 12	Orange 1	Digital Tuner	DTV startup error	DTUNER	PS/RST	
	Orange 2		DTV communication error		RETRY	
	Orange 3		Device error		DEVICE	
	Orange 7		Tuner 1		DE-FE	
	Orange 18		Application		DTVAPP	
	Orange 19		COFDEM		DEMOD	
Blue 13	Orange 1	Failure in the power supply	DC-DC Converter power decrease	RST-MA	M-DCDC	
	Orange 2		POWER SUPPLY		RELAY	
Blue 15	–	Main EEPROM	Main EEPROM communication error	MA-EEP	–	

*1: If the DISPLAY key is pressed during shutdown (the blue LED is flashing), flashing of the orange LED, which indicates the subcategory, can be confirmed.
The blue LED remains flashing. Pressing the DISPLAY key again will make the orange LED go dark.

Checkpoint	Possible Defective Part	Remarks
Communication line between MDU and SQ_LSI	IC3601/IC3301	SQ_IC communication not established. IC3301 may not have properly started up.
Drive detectig signal of MDU (SQ_NON)	CN3201/IC3601/ IC3301/IC3607	A shutdown occurs if the drive waveform periodically does not output. (When SQ_NON of MDU input is High, a shutdown is generated.)
Communication line between MDU and SQ_LSI (BUSY_SQ)	IC3601/IC3301	If BUSY_SQ remains high, a shutdown is generated.
Check the DIGITAL Assy and the software version of SEQ and the destination of the panel. Check the connection between [X1] and [D22].	IC3601/IC3301	When the identification resistor of PSIZE/PLANT and software version of SEQ are incoherent, a shutdown occurs.
Check the DIGITAL Assy and the software version of SEQ and the destination of the panel. Check the connections between [X1] and [D22], and [SE1] and [D24]. Communication line between MDU and BACKUP EEPROM	IC3601/ SENSOR Assy(IC3902)	When the identification resistor of PSIZE/PLANT and stored content of EEPROM on the SENSOR Assy are incoherent, a shutdown occurs.
Check the DIGITAL Assy and the software version of SEQ and the destination of the panel. Check the connections between [X1] and [D22]. Communication line between MDU and DIG EEPROM	IC3601/IC3602	When the identification resistor of PSIZE/PLANT and stored content of EEPROM on the DIGITAL Assy are incoherent, a shutdown occurs.
Communication line between MDU and DIG EEPROM	IC3601/IC3602	
Communication line between MDU and BACKUP EEPROM	IC3601/SENSOR Assy(IC3902)	
Communication line between MDU and DAC	IC3601/IC3605	
3.3 V output (TP3881) of DDC	IC3801/IC3805	If RST2 does not become high after the unit is turned on, a shutdown will be generated in several seconds.
V+6.5V of POWER SUPPLY Unit (Check [D25][P4]) FU3801 has melted.	POWER SUPPLY Unit, FU3801	Check if V + 6_5 V is started. Also check if the FU3801 on the DIGITAL Assy has been melted.
Installation environment	SENSOR Assy (IC3901)	If TEMP1 that is read by the module microcomputer is 85 °C or higher, a shutdown will be generated.
Installation environment Check the connection between SE1 and D24.	SENSOR Assy (IC3901)	A shutdown occurs if the reading of TEMP1 detected by the module microcomputer is –20 °C or less. Also check the connection between SE1 and D24.
Speaker terminals	JA8551	Check if any speaker cable is in contact with the chassis.
D_AMP	IC8401	Check if the AMP output is short-circuited.
Periphery of the cable between IO3 and M12, and IO4 and M13	CN7503,CN7504, CN4003,CN4004	Check if cables are firmly connected.
D_A, MP	IC8401	Check the temperature that is 125 °C or less.
Communication line between MAIN and MOD	IC7003	Check the communication lines (TXD_MOD/RXD_MOD/REQ_MOD).
Periphery of the cable between D11 and M12	CN4101,CN4105	Check if cables are firmly connected.
Communication line between IF and MAIN	IC7003,IC6501	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF/REQ_IF).
Communication line between MULTI and MAIN	IC7003,IC6501	Check the communication lines (TXD_ARIA/RXD_ARIA).
IIC communication line between Tuner and MAIN	U5301,IC7003	Check the communication lines (SCL_TU/SDA_TU or SCL_AV/SDA_AV).
IIC communication line between MSP/MAP and MAIN	IC8201,IC7003	Check the communication lines (SCL_AV/SDA_AV).
IIC communication line between AV-SW and MAIN	IC8001,IC7003	Check the communication lines (SCL_AV5/SDA_AV5).
IIC communication line between RGB_SW and MAIN	IC8101,IC7003	Check the communication lines (SCL_AV5/SDA_AV5).
IIC communication line between M_VDEC and MAIN	IC4702,IC7003	Check the communication lines (SCL_MB/SDA_MB).
IIC communication line between VDEC and SDRAM	IC4702,IC4802	Check the communication lines (SDRAM). Defective SDRAM
IIC communication line between ADC and MAIN	IC4801,IC7003	Check the communication lines (SCL_AV/SDA_AV).
IIC communication line between HDMI_RX and MAIN	IC4901,IC7003	Check the communication lines (SCL_MB/SDA_MB).
Communication line between IF and MAIN	IC6811,IC7003	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF/REQ_IF).
Dirt attached to the fan motor		Check the fan. (SD10 does not detect it at the temperature that fans do not turn.)
Periphery of the FAN CONNECT Assy		FAN NG
Periphery of the cable between FA1 and FA3		Check if cables are firmly connected.
Periphery of the fan control regulator	IC4303	Check that the voltage outputs it.
Ambient temperature		TEMP2 A shutdown occurs because of high temperature.
Temperature sensor or its periphery	TH7891	TEMP2
Periphery of the cable between IO4 and M13	CN7504,CN4004	Check if cables are firmly connected.
Startup of BCM7404	IC6001	Check the startup of the BCM7404 and the communication line with MAIN.
Communication line between BCM7404 and MAIN	IC6001	Check the startup of the BCM7404 and the communication line with MAIN.
Periphery of BCM7404	IC6001	
Front-end block	IC6001,U5301	Check the BCM7404 and its peripheral device.
DTV application	IC6001	
COFDEM	IC5401	Check the communication lines between BCM7404 and COFDEM.
RST2 V+3_4V_ACT2, V+3_3V_D3	IC7002	Check if each voltages are started.
RST4 V+12V, V+6_5V, V+5_1V, V+3_4V_D	IC7002	Check if each voltages are started.
RST4 V+12V, V+6_5V, V+5_1V, V+3_4V_D	POWER SUPPLY Unit	Check if each voltages are started.
Check the cables M2 and M3.	CN4207, CN4210	Check if cables are firmly connected.
IIC communication line between EEPROM and MAIN	IC7004, IC7003	Check the communcation lines (SCL_EP/SDA_EP)

5.5 NON-FAILURE INFORMATION

■ Information on symptoms that do not constitute failure

Symptom	Cause, item to check, information
HDMI: Symptoms concerning the input format and settings	
The picture color for an INPUT 4 or 5 or 6 signal is not correct.	The color setting for INPUT 4 or 5 or 6 is not compatible with that of the output equipment. Check whether the color setting is YPbPr or RGB.
The video signal to INPUT 4 or 5 or 6 is not displayed, and a message is displayed.	A unsupported video signal is input.
The audio signal input to the INPUT 4 or 5 is not output. No HDMI signal is input.	The audio setting for INPUT 4 or 5 is any setting and a video signal is not input. If the audio setting is any setting to output an analog audio signal, the HDMI signal must be input. (If a DVI device is to be connected, use a DVI-HDMI conversion cable.) If the HDMI video signal is not input, the analog audio signal is not output.
No sound of signals to INPUT 4 or 5 or 6 is output.	The setting on the side of the HDMI output equipment is wrong. (Example: Dolby Digital)
The 1080p input signal is not displayed properly or at all, although the 1080i input signal is displayed properly.	Check that the connected cable supports HDMI Category 2. (As the clock frequency for the 1080p signal is triple that for the 1080i signal, signal degradation caused by a cable must not be neglected. A cable supporting HDMI Category 2 can be used for the 1080p signal. Although some conventional cables can support the 1080p signal, some others cannot.)
DIGITAL OUT	
Playback of the signal from the DIGITAL audio output connector is possible, but recording is not possible.	The video signal output from the DIGITAL connector is copy-protected.
The digital audio output signal from the DIGITAL connector is not synchronized with that from the MONITOR video output.	The digital audio output signal from the DIGITAL connector is synchronized with the video signal that is currently displayed, and not with the MONITOR video output.
Miscellaneous	
The no-signal off function is not activated.	The no-signal off and no-operation off functions are effective only if video (composite, S video, component, HDMI [excluding PC]) input or TV input is selected.
The no-operation off function is not activated.	
Power management does not function.	Power Management is effective only while an analog PC signal is being input. It is not effective with HDMI-PC signal input.
The AUTO SETUP function is not activated.	The Auto Setup function is effective only while an analog PC signal is being input. This function does not work if an analog PC signal is not input, even if the INPUT PC is selected.
The audio signal from the PC is not output.	Wrong connection of the cable to the SR connector is suspected.
Control via the SR connector is not possible.	Wrong connection of the cable to the PC INPUT (AUDIO) connector is suspected.
The picture-quality setting (AV Selection) is not stored.	The picture-quality setting is stored for each input. As the setting is changed when another input is selected, the user may have a false idea that the setting is not stored.
The picture size changes arbitrary.	The Auto Size setting is set to ON.
The display position of the screen changes slightly while the screen is on.	The orbiter function for minimizing the effects of phosphor burn is activated. Although the setting for this function can be changed on the Home menu, retaining the factory setting is strongly recommended.
The video signal to the S video connector is not displayed.	The component video cable is connected to the same input function as for the S video (even if no signal is input to the component video connector, merely having something plugged in to the connector will result in judgment that a signal is being fed in and the component video connector takes priority).(Priority of connectors: component video > S video > composite video)
The video signal to the composite video connector is not displayed.	The S Video or component video cable is connected to the same input function as for the composite video.(Priority of connectors : component video > S video > composite video)

SUPPLEMENT: On the video setting for HDMI

There are three types of HDMI output formats: color difference 4:4:4, color difference 4:2:2, and RGB4:4:4.
(The proportions, such as 4:4:4 and 4:2:2, represent those of the amount of data for video signal components. For example, as for color difference 4:4:4, the proportion of the amount of data as for Y, Cb, and Cr is 4:4:4.)
It is required to make the settings of the PDP according to the settings of the output equipment. For usual operation, however, set them to AUTO. If the color is inappropriate, make the settings manually.
In the HDMI system, video signals are coded at 24 bits per pixel and transmitted as a series of 24-bit pixels. In a case of color difference 4:4:4, Y, Cb, and Cr use 8 bits each. In a case of color difference 4:2:2, Y, Cb, and Cr use 12 bits each, but Cb and Cr are transmitted at a half sampling rate of Y. This unit is capable of processing the upper 10 bits out of 12 bits of video data. Recent high-end DVD players, such as Pioneer DV-79AVi, are capable of outputting 10-bit color-difference signals. In general, it is said that picture quality for color difference 4:2:2 format is assumed to be higher, because human eyes are more sensitive to luminance than to colors. In the case of RGB4:4:4, R, G, and B use 8 bits each.

[2] FUNCTION OF DECREASING THE BRIGHTNESS LEVEL

If the panel temperature becomes high or a video signal that requires activation of panel protection is input, the unit will protect the panel by decreasing the brightness level.
* While a mask is being displayed, the panel protection function will not be activated.

Protection Function Name	Purpose	Conditions	Protection Function	Remarks
High-temperature protection function 1	For protection of parts (DCF)	Panel temperature (TEMP1) reaches 65 °C.	Offsetting the ABL adjustment value	
High-temperature protection function 2	For reducing heating in the unit	Panel temperature (TEMP1) reaches 80 °C.	Limiting for the maximum number of SUS pulses	
Panel protection function 1	For preventing burn-in	A still image is displayed for 3 minutes or more.	Limiting for the maximum number of SUS pulses	The picture will be considered to be still if only the mouse cursor is moved.
Panel protection function 2	For protection of SCAN ICs	An image with which a particular load is applied to one SCAN IC is displayed. (See Fig. 2)	Limiting for the maximum number of SUS pulses	
Panel protection function 3	For protection against panel cracking	An image with which the heat of part in the panel is increased is displayed. (See Fig. 3)	Limiting for the maximum number of SUS pulses	

■ Limiting for the maximum number of SUS pulses

By gradually decreasing the limit for the maximum number of SUS pulses, the temperature of the panel will be lowered.

- The limit for the maximum number of SUS pulses will be decreased by 8 per 5 seconds.
- The lower limit for the maximum number of SUS pulses is about 700.
- The maximum number of SUS pulses will begin to increase gradually if the conditions that led to activation of the protection function return to normal.

■ ABL adjustment value offset

By gradually offsetting the ABL adjustment value, the temperature of the panel will be lowered. The number of SUS pulses, which is determined based on the input APL (average picture level), will be decreased.

- The ABL adjustment value will be offset by one step per 30 seconds.
- The ABL adjustment value will be gradually restored if conditions that let to activation of the protection function return to normal.

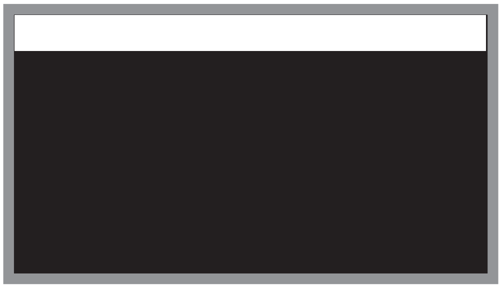


Fig. 2: Detection example: SCAN IC protection

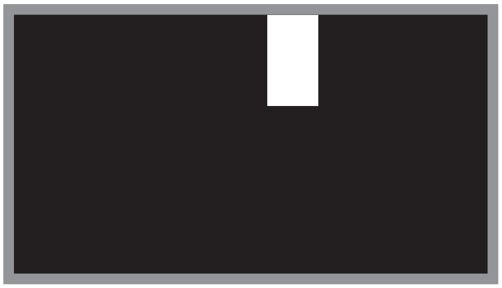


Fig. 3: Detection example: Protection against panel cracking

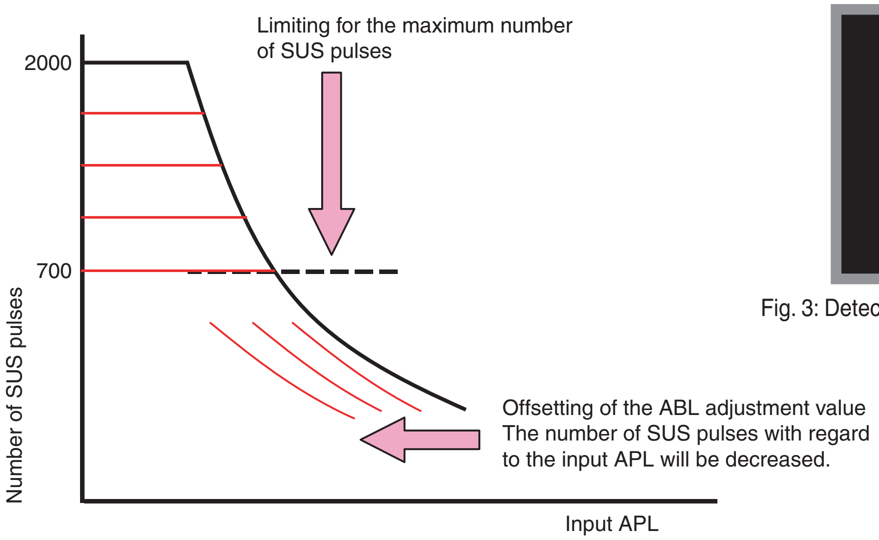


Fig. 1: Relationship between input APL and number of SUS pulses

5.6 OUTLINE OF THE OPERATION

[1] PANEL DRIVE-POWER ON/OFF FUNCTION

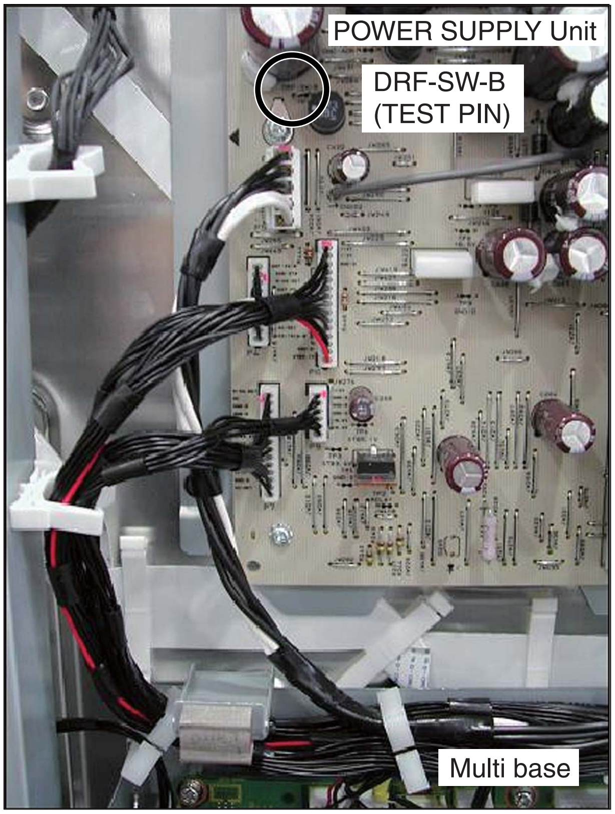
Function:
It is an operational mode where the digital signal processing performs circuit operation but the power is not supplied to the panel driving system (Vsus, VAddress) in order to avoid a power down (PD).

Application:
1. When it is necessary to check whether the signal output is correctly reaching the drive system in a repairing activity etc.
2. In the case of a PD, to determine whether the problem is with the panel drive-power supply or with the other system power supply.

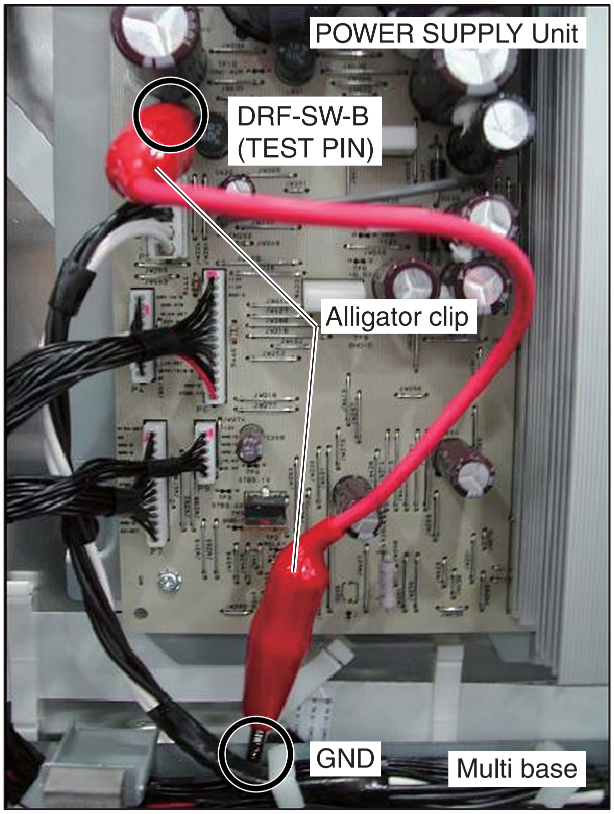
Method:
1. Short-circuit between the specified location of the POWER SUPPLY Unit and GND (Multi base section recommended), using a jumper with alligator clips (refer to the photos below).
2. Execute [DRV S00] by RS-232C command. ([DRV S01] for release)

Supplemental explanation:
- When the panel drive-power is in OFF state, there will be no PD, except PS_PD, as the PD signal has been muted.
- If the clip is removed in the OFF state of the panel drive-power, PD will take place at the instance of clip removal. Therefore, be sure to remove the clip after turning the power OFF.
- Under RS-232C command control, [DRV S01] (release) is possible during power ON. However, there is a possibility of damaging the set. Therefore, make this operation only after turning the power OFF.
- Command [DRV S00/S01] is effective even during standby.
- Setting with RS-232C commands or the remote control unit is enabled during Standby mode. However, if the unit is left unoperated for about 10 seconds in Standby mode after setting with RS-232C commands or the remote control unit is completed, the setting will become void.
- When the main power switch is set to OFF, no command is accepted.
- Setting with RS-232C commands or the remote control unit will become void if the AC power cord is unplugged, the main power switch is set to OFF, or the unit is left unoperated for about 10 seconds in Standby mode.

When the panel drive-power is ON



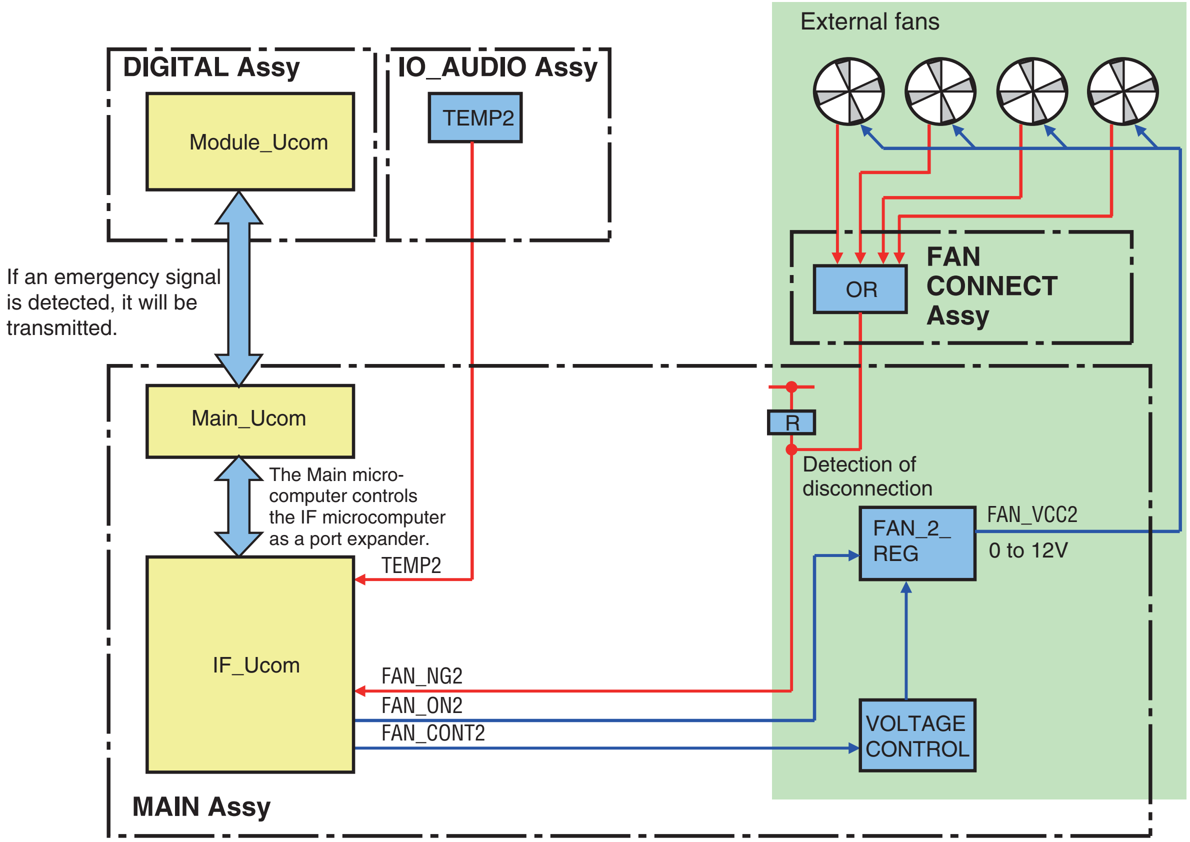
When the panel drive-power is OFF



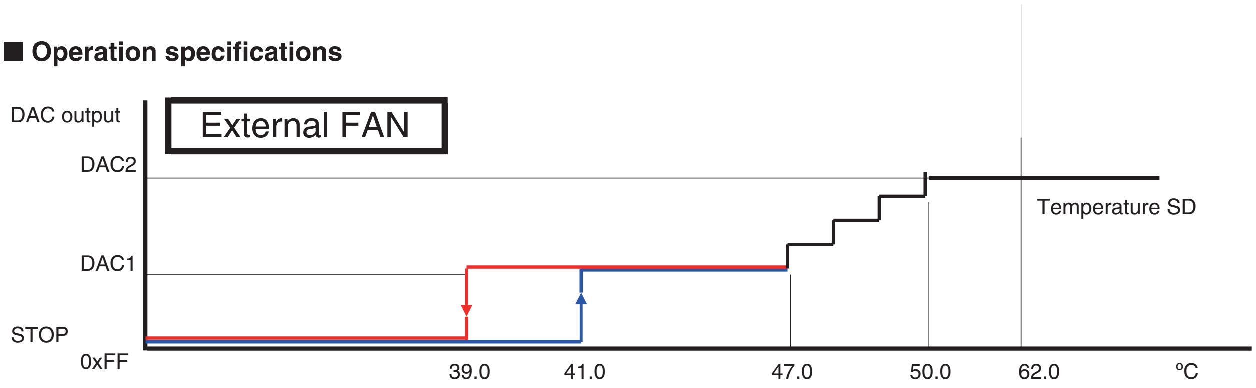
[2] SPECIFICATION OF THE FAN CONTROL

■ Block diagram

The external fans cool down the whole unit.


External fans
DIGITAL Assy
Module_Ucom
IO_AUDIO Assy
TEMP2
FAN
CONNECT
Assy
OR
If an emergency signal
is detected, it will be
transmitted.
Main_Ucom
R
Detection of
disconnection
The Main micro-
computer controls
the IF microcomputer
as a port expander.
FAN_2_
REG
FAN_VCC2
0 to 12V
TEMP2
IF_Ucom
FAN_NG2
FAN_ON2
FAN_CONT2
VOLTAGE
CONTROL
MAIN Assy

■ Operation specifications



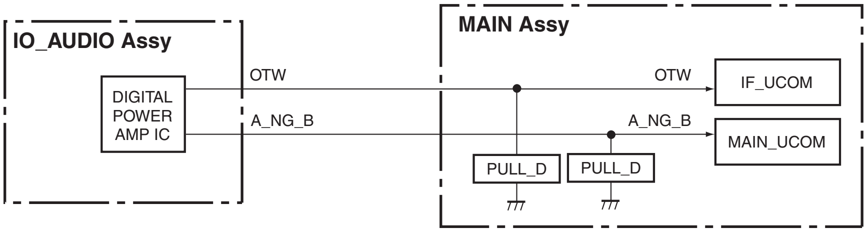
Notes:

- The operating temperature of the fan is higher than the ambient temperature, because the sensor temperature is read by the microcomputer.
- If the critical values for signals are displayed in the address circuit, the fan may be activated or be rotated at higher speed in response to values lower than the set temperature values shown above.
- When the temperature rises, the sensor voltage of TEMP2 decreases.
- When the voltage of the DAC output for external FAN decreases, rotation speed of FAN rises.

[3] PROCESSING IN ABNORMALITY

Speaker short-circuit

● Circuit configuration



● Specifications for port monitoring

Port Name	SD/PD Indication	Active	Monitoring conditions	Operation
A_NG_B	AUDIO	Shutdown occurs when the signal is "L." 30 mS ∗ 10 times	RST4 = "H" (always) (Monitoring starts 2 sec after the above conditions are established.)	The main CPU operations described below will be performed when either "A_NG_B = L" or "OTW = L" is detected (established) under the monitoring conditions.
OTW	AUDIO	Shutdown occurs when the signal is "L." 120 mS ∗ 3 times		

● Operation specifications of the main CPU

(1) Establish the short-circuit of the speaker by the main CPU

- After a warning indication is displayed for 5 sec, a shutdown is generated (the blue LED flashes 5 times).
- A warning indication is displayed for all input-signal types.
- Example of a warning indication: "The speaker terminals are short-circuited. After reconnection, turn the unit on again."

(2) Display conditions

When the panel is on: A warning indication is displayed immediately.
When the panel is off: A warning indication is not displayed immediately but is displayed when the panel is turned on.

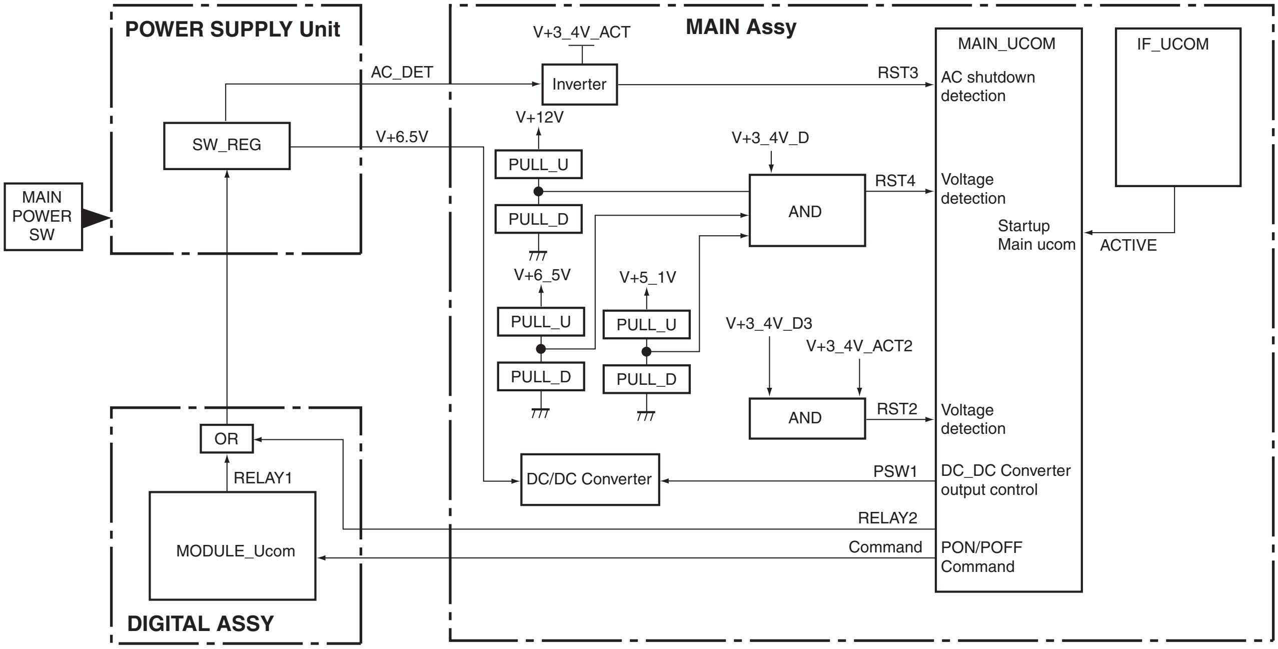
Note: A warning indication is displayed each time the panel is turned on if the conditions for a shutdown persist.

● Conditions for resetting the circuits

The circuits will be reset upon Standby ON/OFF.

Power supply and DC-DC converter

● Circuit configuration

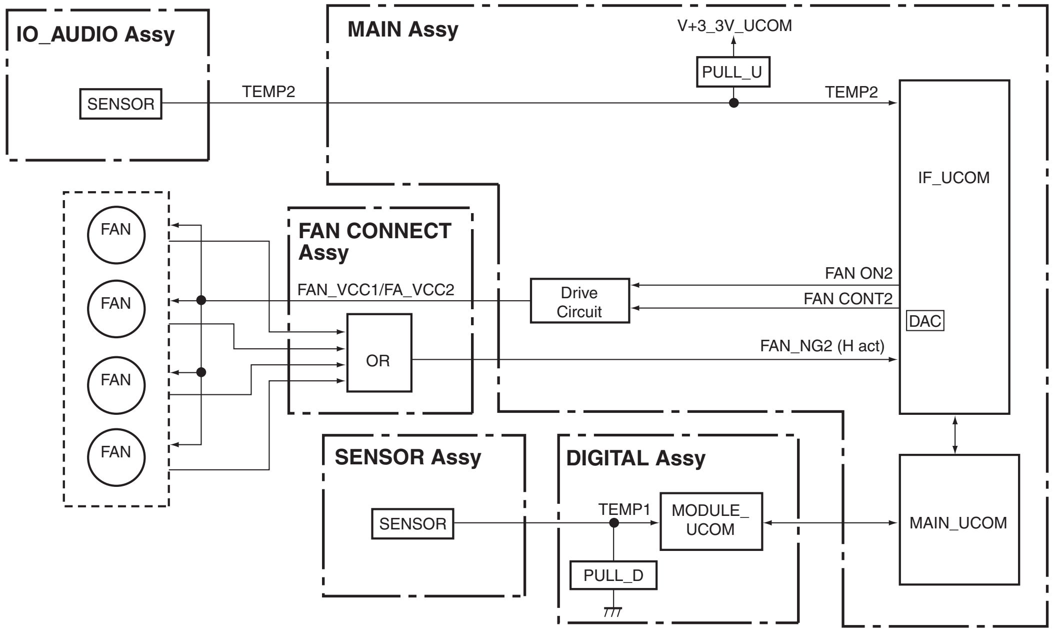

POWER SUPPLY Unit
MAIN Assy
DIGITAL ASSY
MAIN POWER SW
SW_REG
AC_DET
V+6.5V
V+3_4V_ACT
Inverter
V+12V
PULL_U
PULL_D
V+6_5V
PULL_U
PULL_D
V+5_1V
PULL_U
PULL_D
V+3_4V_D
AND
V+3_4V_D3
V+3_4V_ACT2
AND
RST3
RST4
RST2
PSW1
RELAY2
Command
DC/DC Converter
OR
RELAY1
MODULE_Ucom
MAIN_UCOM
AC shutdown detection
Voltage detection
Startup Main ucom
Voltage detection
DC_DC Converter output control
PON/POFF Command
IF_UCOM
ACTIVE

● Specifications for port monitoring

Port Name	SD/PD Indication	Active	Monitoring conditions	Operation
RST2	ASIC power (M-DCDC)	Shutdown occurs when the signal is "L." for 5 sec after PSW1 is ON. or for 2 sec while the unit is ON.	• Panel screen ON (RST4 = H and PSW1 = H) • While awaiting restoration of RST2 (RST2 = L)	Shutdown occurs immediately Blue LED flashes 13 times
RST3	AC power	AC_OFF when the signal is "H."	Excepting passive standby	If "RST3 = H" (AC_OFF) is detected under the monitoring conditions, a power-off process starts. Monitoring of the RST3 port is continued, while monitoring of other ports is interrupted. Communication is controlled only by the IF microcomputer. The port outputs are set as specified. If the signal at the RST3 port continues to be H after 30 mS of waiting, monitoring is continued. If RST3 is L, a restoration process starts according to the latest power-on/-off status.
RST4	MAIN power (RELAY)	Shutdown occurs if the signal is "L." for 5 sec after RELAY2 is ON. or for 2 sec while the unit is ON or in Functional STB.	RELAY2 = ON (High)	Shutdown occurs immediately Blue LED flashes 13 times

Fan and temperature sensor

● Circuit configuration

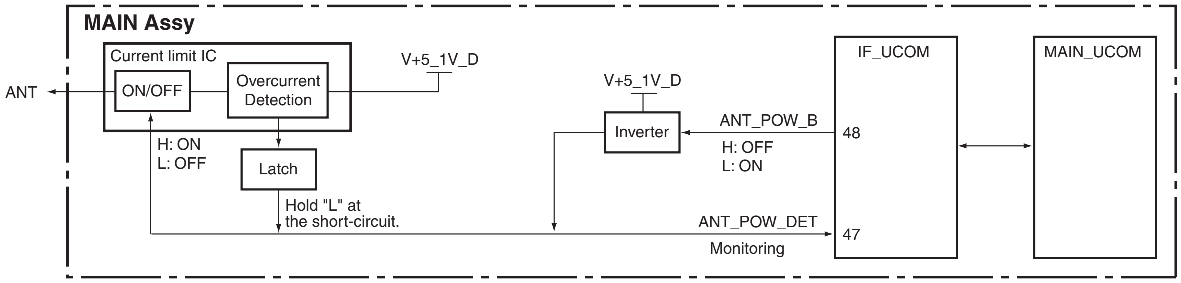

IO_AUDIO Assy
SENSOR
TEMP2
MAIN Assy
V+3_3V_UCOM
PULL_U
TEMP2
IF_UCOM
FAN
FAN
FAN
FAN
FAN CONNECT Assy
FAN_VCC1/FA_VCC2
Drive Circuit
FAN ON2
FAN CONT2
DAC
OR
FAN_NG2 (H act)
SENSOR Assy
SENSOR
DIGITAL Assy
TEMP1
MODULE_ UCOM
PULL_D
MAIN_UCOM

● Specifications for port monitoring

Port Name	SD/PD Indication	Active	Monitoring conditions	Operation
FAN_NG2	FAN	Shutdown occurs when the signal is "H." 1 S ∗ 3 times	RST2 = H and FAN_ON2 = H (Monitoring starts 3 sec after the above conditions are established.)	Shutdown occurs immediately Blue LED flashes 10 times
TEMP2	High temperature at MTB	Shutdown occurs if any values equal to or greater than minimum to require a shutdown are detected. 1 S ∗ 3 times	RST4 = H (Monitoring starts 1 sec after the above conditions are established.)	In the Panel screen ON: Shutdown occurs after the warning indication is displayed for 30 sec. In the Functional STB: Shutdown occurs immediately Blue LED flashes 11 times
TEMP1	Panel temperature is high	Shutdown occurs if any values equal to or greater than minimum to require a shutdown are detected. 200 mS ∗ 5 times (average)	Digital video RST2 = H	Shutdown occurs after waiting for 30 sec. Blue LED flashes 4 times
	Panel temperature is low			Shutdown occurs after waiting for 3 sec. Blue LED flashes 4 times

DTB Antenna power supply

● Circuit configuration


MAIN Assy
Current limit IC
ON/OFF
Overcurrent Detection
V+5_1V_D
ANT
H: ON
L: OFF
Latch
Hold "L" at the short-circuit.
V+5_1V_D
Inverter
ANT_POW_B
H: OFF
L: ON
ANT_POW_DET
Monitoring
IF_UCOM
48
47
MAIN_UCOM

● Specifications for port monitoring

Port Name	SD/PD Indication	Active	Monitoring conditions	Operation
ANT_POW_DET	DTB antenna short-circuited	Warning message is displayed when the signal is L (100 mS, 3 times)	RST4 = H and ANT_POW_B = L	If "ANT_POW_DET = L" is detected (established) under the monitoring conditions, an SD log is created and the warning message is displayed for 60 sec. A shutdown process is not performed in the power system.

5.7 OUTLINE OF RS-232C COMMAND

[1] PREPARED TOOLS

It is necessary to prepare the following one to use 232C command.

- PC
- Application for control
- 232C cable (straight)

∗ The setting of the Com port cannot be communicated if it doesn't do correctly.
(Please follow a set explanation of PC in the Com port)

[2] USING RS-232C COMMANDS

Individual ports are provided for RS-232C and SR+ connectors with this model. Therefore, unlike the case of previous models, which required switching of exclusive operation between these connectors on the Integrator menu, switching is no longer required.

5.8 LIST OF RS-232C COMMANDS

RS-232C commands can be used in Service Factory mode. Before using RS-232C commands, it is necessary to change the factory presetting. See "5.7 OUTLINE OF RS-232C COMMAND".
[Note ; If you want to see version infomation (ex. QS1, QSE, Factory, Menu), Please see 10 seconds after starting.]

■ RS-232C command list

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
A							
ABL	***	Adjusting the upper limit of the power	●		MOD	●	
AMT	S00	Audio mute OFF		●			
	S01	Audio mute ON		●			
AP0	S**	ADDRESS L1, L2 setting	●		MOD	●	Note 1
AP1	S**	ADDRESS L3, L4 setting	●		MOD	●	Note 1
AP2	S**	ADDRESS U1, U2 setting	●		MOD	●	Note 1
AP3	S**	ADDRESS U3, U4 setting	●		MOD	●	Note 1
APN	***	1V average pulse number setting	●		MOD	●	
B							
BCP		Copying the backup data in the EEPROM	●		MOD	●	
BSM	S00	After image/Burning safe mode: OFF	●				
	S01	After image/Burning safe mode: ON	●				
C							
CHN	FWD	Changing tuner preset channel (1 step forward)		●			
	REV	Changing tuner preset channel (1 step reverse)		●			
CBU		Clearing backup data of EEPROM	●		MOD	●	
CHM		Clearing data of the hour meter	●	●	MOD	●	
CHR		Clearing data of the hour meter of MTB/MR side		●			Clear the hour meter of screen display of MAIN NG
CMT		Clearing data of the maximum temperature	●		MOD	●	
CNG		Clearing shutdown history of MTB/MR side		●			
CPC		Clearing power-on count data	●		MOD	●	
CPD		Clearing power-down histrory	●		MOD	●	
CPM		Clearing data of the pulse meter	●		MOD	●	
CSD		Clearing shutdown history of Panel side	●		MOD	●	
CSF	S00	Color sensor function OFF	●				
	S01	Color sensor function ON	●				
CSM	S01	Color space mode 1: Pioneer original	●				
	S02	Color space mode 2: EBU standard conformity	●				
CSB	***	Blue coefficient of color sensor	●		MOD	●	
CSG	***	Green coefficient of color sensor	●		MOD	●	
CSR	***	Red coefficient of color sensor	●		MOD	●	
CTP	S00	Color temperature switch OFF	●				
	S01	Color temperature switch LOW setting	●				
	S02	Color temperature switch MID LOW setting	●				
	S03	Color temperature switch MID setting	●				
	S04	Color temperature switch MID HIGH setting	●				
	S05	Color temperature switch HIGH setting	●				
D							
DIZ	S00	Dither/L dither OFF & noise OFF	●			●	
	S01	Dither/L dither ON & noise ON	●			●	
	S02	Dither/L dither OFF & noise ON	●			●	
	S03	Dither/L dither ON & noise OFF	●			●	
DRV	S00	Panel drive-power OFF	●				
	S01	Panel drive-power ON	●				
DW*		To subtract * to the adjustment value (* = 0 to 9, subtract 10 with DW0 and set to minimum value with DWF)		●			

Note 1: It is necessary to turn off the power for reflecting the setting change.

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
F							
FAJ		Determining the flag of the DIGITAL Assy adjustment in "adjustment is completed"	●		MOD	●	
FAN		Factory mode OFF	●	●		●	
FAY		Factory mode ON	●	●			
FBM	S00	OFF (In-phase SUS drive prohibition)	●		MOD	●	Note 1
	S01	MODE1 (In-phase SUS drive permission)	●		MOD	●	Note 1
FST	S43	Set each memory setting of MTB/MR side to the shipment state.		●		●	
I							
INA	***	Switching the terrestrial analog signal, direct tuning (***: channel number)		●	MAIN		
		Switching the terrestrial analog signal (Channnel is in the last.)		●	MAIN		
INC	***	Switching the terrestrial digital signal, direct tuning (***:channel number)		●	MAIN		
		Switching the terrestrial digital signal (Channnel is in the last.)		●	MAIN		
INH	***	Switching the Home Media Gallery / Home Gallery		●			
INP	S01	Input switch: INPUT 1		●	MAIN		
	S02	Input switch: INPUT 2		●	MAIN		
	S03	Input switch: INPUT 3		●	MAIN		
	S04	Input switch: INPUT 4		●	MAIN		
	S05	Input switch: INPUT 5		●	MAIN		
	S06	Input switch: INPUT 6		●	MAIN		
	S07	Input switch: INPUT 7 (PC)		●	MAIN		
M							
MIR	S00	Mirror display mode: OFF	●				
	S01	Mirror display mode: Right and left inversion	●				
	S02	Mirror display mode: Top and bottom inversion	●				
	S03	Mirror display mode: Top and bottom and right and left inversion	●				
MKC	S00	MASK OFF	●		MOD		
	S01	H ramp (slant 1) M	●		MOD	●	
	S02	H ramp (slant 4) M	●		MOD	●	
	S03	Slanting ramp M	●		MOD	●	
	S04	30 for aging	●		MOD	●	
	S05	05 for aging	●		MOD	●	
	S06	Erasing afterimage 1	●		MOD	●	
	S07	Erasing afterimage 2	●		MOD	●	
	S08	White (change in luminance level)	●		MOD	●	
	S09	PEAK detection raster	●		MOD	●	
	S10	Address lack check	●		MOD	●	
	S11	Green vertical line scroll	●		MOD	●	
	S12	Green horizontal line scroll	●		MOD	●	
	S13	Vertical ramp vertical scroll (white)	●		MOD	●	
	S14	Vertical ramp vertical scroll (green)	●		MOD	●	
	S15	Horizontal ramp horizontal scroll (white)	●		MOD	●	
	S16	Horizontal ramp horizontal scroll (green)	●		MOD	●	
	S17	Cross hatch + window	●		MOD	●	
MKS	S00	MASK OFF	●		MOD		
	S01	H ramp (slant 1)	●		MOD	●	
	S02	H ramp (slant 4)	●		MOD	●	

Note 1: It is necessary to turn off the power for reflecting the setting change.

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
M							
MKS	S03	V ramp (slant 1)	●		MOD	●	
	S04	Slanting ramp	●		MOD	●	
	S05	Window (Hi= 870, Lo= 102)	●		MOD	●	
	S06	Window (Hi= 1023, Lo= 102)	●		MOD	●	
	S07	Window (Hi= 1023, Lo=000)	●		MOD	●	
	S08	Window (Hi= 1023) 4 %	●		MOD	●	
	S09	Window (Hi= 1023) 1.25 %	●		MOD	●	
	S10	Window (1/7 LINE)	●		MOD	●	
	S11	STRIPE (MGT/GRN)	●		MOD	●	
	S12	STRIPE (GRN/MGT)	●		MOD	●	
	S13	B & W, checker (1 line)	●		MOD	●	
	S14	B & W, checker (2 lines)	●		MOD	●	
	S15	B & W, checker (4 lines)	●		MOD	●	
	S16	B & W, checker (8 lines)	●		MOD	●	
	S17	COLOR BAR	●		MOD	●	
	S18	Slanting lines	●		MOD	●	
	S19	Red & black, checker (1 line)	●		MOD	●	
	S20	Red & black, checker (2 lines)	●		MOD	●	
	S21	Red & black, checker (4 lines)	●		MOD	●	
	S22	Red & black, checker (8 lines)	●		MOD	●	
	S23	Erasing afterimage (RGB: zigzag, V: reverse)	●		MOD	●	
	S24	Black raster (max SUS pulses)	●		MOD	●	Note 5
	S25	1 for perfect linear	●		MOD	●	
	S26	2 for perfect linear	●		MOD	●	
	S27	3 for perfect linear	●		MOD	●	
	S28	4 for perfect linear	●		MOD	●	
	S29	RGB checker 1	●		MOD	●	
	S30	RGB checker 2	●		MOD	●	
	S31	Window RED (RED=1023)	●		MOD	●	
	S32	Window GREEN (GREEN=1023)	●		MOD	●	
	S33	Window BLUE (BLUE=1023)	●		MOD	●	
	S34	Even line horizontal stripes	●		MOD	●	
	S35	Odd line horizontal stripes	●		MOD	●	
	S36	Afterimage check 1	●		MOD	●	
	S37	Afterimage check 2	●		MOD	●	
	S38	Afterimage check 3	●		MOD	●	
	S39	Afterimage check 4	●		MOD	●	
	S40	Red single-color slanting ramp	●		MOD	●	
	S41	GREEN single-color slanting ramp	●		MOD	●	
	S42	BLUE single-color slanting ramp	●		MOD	●	
	S43	For panel light check 1	●		MOD	●	
	S44	For panel light check 2	●		MOD	●	
	S45	5 for perfect linear	●		MOD	●	
	S46	6 for perfect linear	●		MOD	●	
	S47	7 for perfect linear	●		MOD	●	
	S48	8 for perfect linear	●		MOD	●	
	S49	Mask for ABL adjustment	●		MOD	●	

Note 5: Peak luminance detection function (PKD) modification is impossible.

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
MKR	S00	MASK OFF	●		MOD		
	S01	Raster - White	●		MOD	●	
	S02	Raster - Red	●		MOD	●	
	S03	Raster - Green	●		MOD	●	
	S04	Raster - Blue	●		MOD	●	
	S05	Raster - Black	●		MOD	●	
	S06	Raster - Cyan	●		MOD	●	
	S07	Raster - Magenta	●		MOD	●	
	S08	Raster - Yellow	●		MOD	●	
	S09	Raster - Pink	●		MOD	●	
	S10	Raster - Yellow egg color	●		MOD	●	
	S11	Raster - Light blue	●		MOD	●	
	S12	Raster - Beige	●		MOD	●	
	S13	Raster - Yellow green	●		MOD	●	
	S14	Raster - Cyan 120	●		MOD	●	
	S15	Raster - Magenta 120	●		MOD	●	
	S16	Raster - Yellow 120	●		MOD	●	
	S17	Raster - Gray 120	●		MOD	●	
	S18	Raster - Red 626	●		MOD	●	
	S19	Raster - Green 626	●		MOD	●	
	S20	Raster - Blue 626	●		MOD	●	
	S21	Raster - Red 1023+	●		MOD	●	
	S22	Raster - Green 1023+	●		MOD	●	
	S23	Raster - Blue 1023+	●		MOD	●	
	S24	Raster - Green 225	●		MOD	●	
	S25	Raster - Gray 307	●		MOD	●	
MSE	S00	Product form : one body/monitor model	●		MOD	●	Note 1
	S01	Product form : System model	●		MOD	●	Note 1
MST	S00	Display one screen		●			
	S01	PsideP (Main size: normal)		●			
	S02	PinP (Right down)		●			
	S03	PinP (Right up)		●			
	S04	PinP (Left down)		●			
	S05	PinP (Left up)		●			
	S08	SWAP (Exchanging sub-screen)		●			
N							
NGP	S00	Negative positive inversion: OFF	●				
	S01	Negative positive inversion: ON	●				
O							
OSD	S00	OSD display setting: OFF		●	MAIN		
	S01	OSD display setting: ON		●	MAIN		
P							
PAV	S00	AV selection: FACTORY	●				
	S01	AV selection: STANDARD / PERFORMANCE	●				
	S02	AV selection: DYNAMIC	●				
	S03	AV selection: MOVIE	●				
	S04	AV selection: GAME	●				
	S05	AV selection: SPORT	●				
	S06	AV selection: PURE	●				
	S07	AV selection: USER	●				

Note 1: It is necessary to turn off the power for reflecting the setting change.

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
P							
PAV	S08	AV selection: isf-DAY	●				
	S09	AV selection: isf-NIGHT	●				
	S10	AV selection: OPTIMUM	●				
	S11	AV selection: isf-AUTO	●				
	S12	AV selection: Standard	●				
	S13	AV selection: Reserved (Australian standard)	●				
PBH	***	Panel white balance adjustment - Blue highlight	●		MOD	●	
PBL	***	Panel white balance adjustment - Blue low light	●		MOD	●	
PBX	***	Panel Bx measuring value	●		MOD	●	
PBY	***	Panel By measuring value	●		MOD	●	
PCS	S00	Normal operation	●				
	S01	Catalog specification operation	●				
PDM	S00	Passing PD signals to the POWER SUPPLY Unit => Power-down	●				
	S01	Not passing PD signals to the POWER SUPPLY Unit => No power-down	●				
PES	S00	For general-purpose commonness: Standard	●				
	S01	For general-purpose commonness: Energy saving 1	●				
	S02	For general-purpose commonness: Energy saving 2	●				
	S10	For general-purpose Japan standard: Standard	●				
	S11	For general-purpose Japan standard: Energy saving 1	●				
	S12	For general-purpose Japan standard: Energy saving 2	●				
PFL	S**	Center luminance correction	●				
	S00	Peripheral luminance correction: OFF	●				
	S01	Peripheral luminance correction: ON fixed	●				
	S02	Peripheral luminance correction: APL interlocked ON	●				
PFN		Factory mode at panel side: OFF	●			●	
PFS		Setup the panel side to shipment	●		MOD	●	
PFY		Factory mode at panel side: ON	●				Note 2
PGB	S00	Blue gamma setting: Straight	●				
	S01	Blue gamma setting: Fixed on 1.6	●				
	S02	Blue gamma setting: Fixed on 1.7	●				
	S03	Blue gamma setting: Fixed on 1.8	●				
	S04	Blue gamma setting: Fixed on 1.9	●				
	S05	Blue gamma setting: Fixed on 2.0	●				
	S06	Blue gamma setting: Fixed on 2.1	●				
	S07	Blue gamma setting: Fixed on 2.2	●				
	S08	Blue gamma setting: Fixed on 2.3	●				
	S09	Blue gamma setting: Fixed on 2.4	●				
	S10-31	Blue gamma setting: Customize	●				
PGG	S00	Green gamma setting: Straight	●				
	S01	Green gamma setting: Fixed on 1.6	●				
	S02	Green gamma setting: Fixed on 1.7	●				
	S03	Green gamma setting: Fixed on 1.8	●				
	S04	Green gamma setting: Fixed on 1.9	●				
	S05	Green gamma setting: Fixed on 2.0	●				
	S06	Green gamma setting: Fixed on 2.1	●				
	S07	Green gamma setting: Fixed on 2.2	●				
	S08	Green gamma setting: Fixed on 2.3	●				
	S09	Green gamma setting: Fixed on 2.4	●				
	S10-31	Green gamma setting: Customize	●				
PGH	***	Panel white balance adjustment - Green highlight	●		MOD	●	

Note 2: Mask setting and the picture quality setting of MTB are not changed.

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
P							
PGL	***	Panel white balance adjustment - Green low light	●		MOD	●	
PGX	***	Panel Gx measuring value	●		MOD	●	
PGY	***	Panel Gy measuring value	●		MOD	●	
PGR	S00	Red gamma setting: Straight	●				
	S01	Red gamma setting: Fixed on 1.6	●				
	S02	Red gamma setting: Fixed on 1.7	●				
	S03	Red gamma setting: Fixed on 1.8	●				
	S04	Red gamma setting: Fixed on 1.9	●				
	S05	Red gamma setting: Fixed on 2.0	●				
	S06	Red gamma setting: Fixed on 2.1	●				
	S07	Red gamma setting: Fixed on 2.2	●				
	S08	Red gamma setting: Fixed on 2.3	●				
	S09	Red gamma setting: Fixed on 2.4	●				
	S10-31	Redt gamma setting: Customize	●				
PKD	S00	Peak luminance detection: OFF	●			●	
	S01	Peak luminance detection: ON	●			●	
PKL	S00	No brightness limitation : 100 %	●				
	S01	Brightness limitation 1 : 87 %	●				
	S02	Brightness limitation 2 : 73 %	●				
	S03	Brightness limitation 3 : 60 %	●				
	S04	Brightness limitation 4 : 52 %	●				
	S05	Brightness limitation 5 : 40 %	●				
	S06	Brightness limitation 6 : 27 %	●				
	S07	Brightness limitation 7 : 13 %	●				
PMT	S00	Canceling panel muting	●				Note 3
	S01	Panel muting	●				
POF		Power OFF	●	●	MAIN		
PON		Power ON	●	●	MAIN		
PPT	S00	Panel protection function: OFF	●			●	
	S01	Panel protection function: ON	●			●	
PRH	***	Panel white balance adjustment - Red highlight	●		MOD	●	
PRL	***	Panel white balance adjustment - Red low light	●		MOD	●	
PRX	***	Panel Rx measuring value	●		MOD	●	
PRY	***	Panel Ry measuring value	●		MOD	●	
PUC	S00	Pure cinema: OFF		●	MAIN	●	
	S01	Pure cinema: Standard		●	MAIN	●	
	S02	Pure cinema: Advance		●	MAIN	●	
	S03	Pure cinema: Smooth		●	MAIN	●	
Q							
QAJ		Acquiring various adjustment values of the panel side	●				
QMT		Acquiring temperature of MTB/MR side and Fan speed		●			
QNG		Acquiring shutdown information of MTB/MR side		●			
QPD		Acquiring logs of power-down points	●				
QPM		Acquiring data of the pulse meter	●				
QPW		Acquiring panel white balance adjustment values	●				
QPF		Acquiring characteristic / function setting values of the panel side	●				
QS1		Acquiring unit data, such as the software version	●	●			
QS2		Acquiring data on the status of the unit, such as temperature	●				

Note 3: The mute is unable while displaying the internal mask.

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
Q							
QS3		Each information output for panel	●				
QS5		Each information output for panel (individual function)	●				
QSE		Acquiring unit data, such as the software version of MTB/MR side (specific destination)		●			
QSP		Acquiring sub-version of the microcomputer for panel	●				
QSD		Acquiring data on shutdown	●				
QSI		Acquiring data related with signals	●				
R							
R1K	***	First reset (wedge width)	●		MOD	●	
R2K	***	Second reset (wedge width)	●		MOD	●	
RBL	S00-07	BLUE setting for panel degradation correction : Level 0 to 7	●		MOD	●	Note 1
RGL	S00-07	GREEN setting for panel degradation correction : Level 0 to 7	●		MOD	●	Note 1
RLS	S00	Room light sensor operation : OFF	●				
	S01-05	Room light sensor operation : 1 to 5	●				
RRL	S00-07	RED setting for panel degradation correction : Level 0 to 7	●		MOD	●	Note 1
S							
SAT	***	Timing adjustment between the scan and address	●		MOD	●	
SCW	S00	Normal operation	●				
	S01	Draw the warning blue window (left side)	●				
	S02	Draw the warning red window (right side)	●				
SDF	S00	SRS DEFINITION: OFF		●			
	S01	SRS DEFINITION: DEFINITION1		●			
	S02	SRS DEFINITION: DEFINITION2		●			
	S03	SRS DEFINITION: DEFINITION3		●			
SDM	S00	Shutdown enabled	●				
	S01	Shutdown prohibited	●				
SFR	S01-08	Measures against AM radio noise - Pattern 1 to 8	●		MOD	●	Note 1
SKM	S00	STREAKING correction mode OFF	●		MOD	●	
	S01-08	STREAKING correction mode Setting mode 1 to 8	●		MOD	●	
SMC	S00	Smooth clear drive OFF	●			●	
	S01	Smooth clear drive ON	●			●	
SML	***	Adjustment of the side mask level		●	MAIN	●	
SN0	***	Setting of the serial No. 0 (panel)	●		MOD	●	
SN1	***	Setting of the serial No. 1 (panel)	●		MOD	●	
SN2	***	Setting of the serial No. 2 (panel)	●		MOD	●	
SN3	***	Setting of the serial No. 3 (panel)	●		MOD	●	
SN4	***	Setting of the serial No. 4 (panel)	●		MOD	●	
SQM	S01	VIDEO sequence setting	●				
	S02	PC sequence setting	●				
	S03	FILM sequence setting	●				
SRS	S00	SRS: OFF		●			
	S01	SRS: SRS1		●			
	S02	SRS: SRS2		●			
	S03	SRS: SRS3		●			
SSM	S00	SSCG OFF	●			●	
	S01	SSCG ON	●			●	
SWA	***	Estimated value of the illuminant color (absolute value)	●				
SWF	S00	Reflection of the estimated information of the illuminant color: OFF	●				
	S01	Reflection of the estimated information of the illuminant color: ON	●				
SWR	***	Estimated value of the illuminant color (relative value)	●				

Note 1: It is necessary to turn off the power for reflecting the setting change.

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
S							
SZM	S00	Setting the screen size to Dot by Dot		●	MAIN		
	S01	Setting the screen size to 4 :3		●	MAIN		
	S02	Setting the screen size to FULL or FULL 1080i		●	MAIN		
	S03	Setting the screen size to ZOOM		●	MAIN		
	S04	Setting the screen size to CINEMA		●	MAIN		
	S05	Setting the screen size to WIDE or WIDE1		●	MAIN		
	S06	Setting the screen size to FULL 14:9		●	MAIN		
	S07	Setting the screen size to CINEMA 14:9		●	MAIN		
	S11	Setting the screen size to AUTO		●	MAIN		
	S12	Setting the screen size to WIDE2		●	MAIN		
T							
TBS	S00	TRUBASS: OFF		●			
	S01	TRUBASS: TRUBASS1		●			
	S02	TRUBASS: TRUBASS2		●			
	S03	TRUBASS: TRUBASS3		●			
THS	S00	Theater port interlock operation OFF	●				
	S01	Theater port interlock operation ON	●				
U							
UAJ		Determining the flag for the DIGITAL Assy adjustment in "not adjusted"	●		MOD	●	
UP*		To add * to the adjustment value (* = 0 to 9, add 10 with UP0 and set to maximum value with UPF)		●			
V							
V1F	***	Adjustment of the reference value of Vyknofs 1, 2 voltage	●		MOD	●	
V3F	***	Adjustment of the reference value of Vyknofs 3 voltage	●		MOD	●	
V4F	***	Adjustment of the reference value of Vyknofs 4 voltage	●		MOD	●	
VFQ	S02	Setting the frequency in Mask mode to VD-50 Hz	●		MOD	●	
	S03	Setting the frequency in Mask mode to VD-60 Hz	●		MOD	●	
	S05	Setting the frequency in Mask mode to VD-72 Hz	●		MOD	●	
	S06	Setting the frequency in Mask mode to VD-75 Hz-1	●		MOD	●	
	S07	Setting the frequency in Mask mode to VD-75 Hz-2	●		MOD	●	
	S13	Setting the frequency in Mask mode to PC-60 Hz	●		MOD	●	
VOF	***	Adjustment of the reference value of Vysnofs voltage	●		MOD	●	
VOL	UP*, DW*, ***	To adjust the volume		●			Note 4
VRP	***	Adjustment of the reference value of Vyprst voltage	●		MOD	●	
VSU	***	Adjustment of the reference value of Vsus voltage	●		MOD	●	
VX1	***	Adjustment of the reference value of Vxpofs1 voltage	●		MOD	●	
VX2	***	Adjustment of the reference value of Vxpofs2 voltage	●		MOD	●	
VYF	***	Adjustment of the reference value of ∆ Vyknofs1, 2/3/4 voltage	●		MOD	●	
W							
WBI	S00	Panel WB standard output mode: OFF	●			●	
	S01	Panel WB standard output mode: ON	●			●	
X							
X1B	***	3SF and later-first XSUS (resonance up width)	●		MOD	●	
X3B	***	2SF-third XSUS (resonance up width)	●		MOD	●	
XSB	***	2SF-repeat XSUS (resonance up width)	●		MOD	●	

Note 4: Use this command by designating the adjustment value *** (=000 to 060).

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
Y							
Y1K	***	1SF-YSUS-Tail (wedge width)	●		MOD	●	
Y1Z	***	1SF-YSUS-Tail (resonance down width)	●		MOD	●	
Y2B	***	2SF-second YSUS (resonance up width)	●		MOD	●	
Y2K	***	2SF-YSUS-Tail (wedge width)	●		MOD	●	
Y2Z	***	2SF-YSUS-Tail (resonance down width)	●		MOD	●	
YNK	***	3SF and later (SSF 2 pulses)-YSUS Tail (wedge width)	●		MOD	●	
YTK	***	3SF and later-YSUS Tail (wedge width)	●		MOD	●	
YTZ	***	3SF and later-YSUS Tail (resonance down width)	●		MOD	●	
YSB	***	2SF-repeat YSUS (resonance up width)	●		MOD	●	
Z							
ZME	***	Initializing the video EEPROM data of the MTB/MR side		●		●	

5.9 DETAILS OF EACH COMMANDS

[1] QS1 (PANEL STATUS)

Model information and version information are returned.

Command Format	Effective Operation Modes	Function	Remarks
[QS1]	Every Time	Output of status	Return data: 3 (ECO) + 112 (DATA) + 2 (CS) = 117 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS1
1	Resolution/Size	1 byte	F
2	Panel Generation	1 byte	9
3	Destination	1 byte	∗
4	Grade	1 byte	∗
5	Panel Product Form	1 byte	A
6	Boot version of Module microcomputer	3 byte	-01A
7	Program version of Module microcomputer	8 byte	-01A ‘’’’
8	Boot version of sequence processor	3 byte	-01Z
9	Program version of sequence processor	8 byte	-01Z ‘’’’
10	Panel information	8 byte	G9_50F_1
11	Derivative operation identification	1 byte	∗
12	Reserved (panel section)	7 byte	∗∗∗∗∗∗∗
13	, (comma)	1 byte	,
14	MTB generation	1 byte	9
15	MTB destination	1 byte	A
16	MTB grade	1 byte	H
17	MTB product form	1 byte	B
18	Program version of IF microcomputer	8 byte	-01A
19	Boot version of IF microcomputer	4 byte	01A
20	Program version of Main microcomputer	8 byte	-01A
21	Boot version of Main microcomputer	4 byte	01A
22	Common version of ASIC	8 byte	-01A
23	Boot version of ASIC	8 byte	01A
24	PRS version of ASIC	8 byte	-01A
25	PIC version of ASIC	8 byte	-01A
26	Common version of the Digital Tuner	8 byte	-0A
27	Boot version of the Digital Tuner	4 byte	01A
CS	2 Byte	2 byte	4A

11: Derivative Operation Identification	
∗	Standard model operation
1	Derivative model operation

14: MTB Generation	
9	G9

15: MTB Destination	
A	North America
C	China
E	Europe
G	General
J	Japan
U	Australia

16: MTB Grade	
H	Elite/One body Europe HD /System Europe HD/One body Australia
T	Regular/One body Europe SD
D	Derivative Model
∗	No Grade (Japan/General/China)

17: MTB Product Form	
B	One body model
S	System model

1: Resolution/Size	
F	50-FHD (1920∗1080)
G	60-FHD (1920∗1080)

2: Panel Generation	
9	G9

3: Destination	
∗	Commonness

4: Grade	
∗	Commonness
Z	Evaluation

5: Panel Product Form	
A	One body/monitor model
S	System model

10: Panel Information (8 Byte)		
1 to 2nd byte	G9	Generation information
4 to 5th byte	50	50 inch
	60	60 inch
6th byte	F	FHD
8th byte	3	50 inch 2nd PLANT (Reserved)
	2	50 inch 2nd PLANT
	1	50 inch 1st PLANT
	‘	Others

‘ = space

[2] QS2 (PANEL OPERATION DATA)

The command QS2 is for acquiring data on the panel's operational information.

Command Format	Effective Operation Modes	Function	Remarks
[QS2]	Every Time	Output of status	Return data: 3 (ECO) + 34 (DATA) + 2 (CS) = 39 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS2
1	Notify of the standby operation transition	1 byte	1
2	Adjustment flag of the main unit	1 byte	0
3	Adjustment-data backup flag	1 byte	0
4	"1st PD" data	1 byte	0
5	"2nd PD" data	1 byte	0
6	Color sensor data	1 byte	0
7	Reserved	2 byte	**
8	Temperature data (TEMP 1)	3 byte	128
9	SD data	1 byte	0
10	SD subcategory data	1 byte	0
11	Operation status induced by SD	1 byte	0
12	Reserved	3 byte	***
13	HOUR METER	8 byte	00000259
14	MASK indication	1 byte	0
15	Still picture detection	1 byte	0
16	SCAN protection detection	1 byte	0
17	Panel crack detection	1 byte	0
18	Address emergency detection	1 byte	0
19	Reserved	4 byte	****
CS	2 Byte	2 byte	4A

1: Power supply status	
P	During power ON
0	Shifting to Passive Standby is not possible.
1	Shifting to Passive Standby is possible.

2: Adjustment flag of the main unit	
0	Adjustment completed
1	Adjustment not completed

3: Adjustment-data backup flag	
0	Adjustment completed
1	Adjustment not completed

4, 5: PD data	
0	No PD data
2	POWER
3	SCAN
4	SCN-5V
6	Y-DCDC
7	Y-SUS
8	ADRS
A	X-DCDC
B	X-SUS
C	DIG-DCDC
F	UNKNOWN

6: Color sensor data	
-	Function OFF (including standby)
0	Normal
1	Hardware connection is not completed
2	Data mismatching

9: SD data	
0	No SD
1	SQ_LSI
2	MDU-DEVICE
3	RST2
4	Panel temperature

10-1: SD subcategory (SQ_LSI)	
0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
4	Version mismatching (H/S)
5	Version mismatching (H/M)
6	Version mismatching (H/I)

10-2: SD subcategory (MDU-DEVICE)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

10-3: SD subcategory (Panel temperature)	
0	No SD-Sub data
1	Panel high temperature
2	Panel low temperature

11: Operation status induced by SD	
0	Normal
1	Relay-off completed
2	During warning indication

14: MASK indication	
0	MASK-OFF
1	MASK-ON

15 to 18: Detection of Each Protection function	
0	Normal operation
1	At detection of protection operation

[3] QS3 (OTHER DATA ON THE PANEL)

The command QS3 is for acquiring data on operational information of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QS3]	Every Time	Output of status	Return data: 3 (ECO) + 58 (DATA) + 2 (CS) = 63 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS3
1	SERIAL	15 byte	- - - - - - - - - - - - - - -
2	HOUR METER	8 byte	00000000
3	TOTAL HR METER	8 byte	00000000
4	PON COUNTER	8 byte	00000000
5	Panel temperature (*1)	5 byte	23.5
6	Reserved (TEMP0 acquisition)	5 byte	_ _ _._
7	MAX panel temperature history (*1)	5 byte	78.3
8	Reserved	4 byte	****
CS	2 Byte	2 byte	94

Note
(*1) : Centigrade scale

[4] QS5 (COLOR SENSOR DATA)

The command QS5 is for acquiring the color sensor information.

Command Format	Effective Operation Modes	Function	Remarks
[QS5]	Every Time	Output of status	Return data: 3 (ECO) + 45 (DATA) + 2 (CS) = 50 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS5
1	Color sensor data (Note)	1 byte	2
2	RED data of color sensor	4 byte	0425
3	GREEN data of color sensor	4 byte	2112
4	BLUE data of color sensor	4 byte	5000
5	Reserved	32 byte	** to **
CS	2 Byte	2 byte	94

Note: The color sensor data is output as the same data as QS2.

[5] QSP (SUB VERSION OF THE PANEL SECTION)

The command QSP is for acquiring sub version data on software of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QSP]	Every Time	Output of status	Return data: 3 (ECO) + 40 (DATA) + 2 (CS) = 45 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QSP
1	MDUcom-PRG	8 byte	=01Y
2	MDUcom-DATA_TBL	8 byte	=01Y ' ' ' '
3	SQ_LSI-PRG	4 byte	=01Y
4	SQ_LSI-PIC_TBL	8 byte	=01Y ' ' ' '
5	SQ_LSI-SEQ_DATA	4 byte	=01Y
6	Reserved	8 byte	********
CS	2 Byte	2 byte	A3

[6] QAJ (PANEL ADJUSTMENT DATA)

The command QAJ is for acquiring the panel's factory-preset data.

Command Format	Effective Operation Modes	Function	Remarks
[QAJ]	Every Time	Output of status	Return data: 3 (ECO) + 84 (DATA) + 2 (CS) = 89 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QAJ
1	Vsus adjustment value	3 byte	128
2	Vysnofs adjustment value	3 byte	128
3	Vyprst adjustment value	3 byte	128
4	Vxpofs1 adjustment value	3 byte	128
5	Vxpofs2 adjustment value	3 byte	128
6	Vyknofs1,2 adjustment value	3 byte	128
7	Vyknofs3 adjustment value	3 byte	128
8	Vyknofs4 adjustment value	3 byte	128
9	∆ Vyknofs1,2/3/4 adjustment value	3 byte	128
10	Reserved	6 byte	******
11	R1K adjustment value	3 byte	128
12	R2K adjustment value	3 byte	128
13	Y1K adjustment value	3 byte	128
14	Y1Z adjustment value	3 byte	128
15	X1B adjustment value	3 byte	128
16	Y2B adjustment value	3 byte	128
17	X3B adjustment value	3 byte	128
18	YSB adjustment value	3 byte	128
19	XSB adjustment value	3 byte	128
20	YTK adjustment value	3 byte	128
21	YTZ adjustment value	3 byte	128
22	Y2K adjustment value	3 byte	128
23	Y2Z adjustment value	3 byte	128
24	YNK adjustment value	3 byte	128
25	SAT adjustment value	3 byte	128
26	Reserved	3 byte	***
27	AM radio countermeasure	1 byte	1
28	Reserved	2 byte	**
CS	2 Byte	2 byte	B7

27: AM radio countermeasure	
n	n: 1 to 8 (SUS frequency n)

[7] QPW (VIDEO ADJUSTMENT DATA OF THE PANEL)

The command QPW is for acquiring the factory-preset data about the video of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPW]	Every Time	Output of status	Return data: 3 (ECO) + 40 (DATA) + 2 (CS) = 45 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QPW
1	Type of drive sequence (Note 1)	4 byte	60VS
2	ABL adjustment table	1 byte	1
3	Type of WB adjustment table (Note 1)	1 byte	1
4	ABL adjustment value	3 byte	128
5	R-HIGH adjustment value	3 byte	256
6	G-HIGH adjustment value	3 byte	256
7	B-HIGH adjustment value	3 byte	256
8	R-LOW adjustment value	3 byte	512
9	G-LOW adjustment value	3 byte	512
10	B-LOW adjustment value	3 byte	512
11	R gamma setting	2 byte	31
12	G gamma setting	2 byte	10
13	B gamma setting	2 byte	10
14	Streaking correction	1 byte	1
15	Center luminance correction	1 byte	0
16	Reserved	1 byte	*
17	Interlocked with APL	1 byte	0
18	Transition of protective operations	1 byte	0
19	Reserved	2 byte	**
CS	2 Byte	2 byte	37

1: Type of Drive sequence	
50VS	Video 50 Hz
60VS	Video 60 Hz
72VS	Video 72 Hz
75V1	Video 75-1 Hz
75V2	Video 75-2 Hz
60PS	PC 60 Hz

2: ABL adjustment table	
n	n: 1 to 3

3: Type of WB adjustment table	
n	n: 1 to 4

11, 12, 13: RGB Gamma setting	
n	00 to 31

15: Center luminance correction	
0	OFF
1	ON
2	ON (interlocked with APL)

17: Interlocked with APL	
0	OFF
1	ON
2	WB interlocked ON/γ OFF
3	WB interlocked OFF/γ ON

18: Transition of protective operations	
0	Upper limit state for brightness
1	Brightness being reduced
2	Lower limit state for brightness
3	Brightness being increased

Note 1: The "75 Hz-2" Drive Sequence type signals and WB Adjustment Table 4 are output only when "75 Hz-2" (VFQS07) is selected for internal signals (mask signals).
When external signals are selected and the Drive Sequence type is 75 Hz, "75 Hz-1" is output because "75 Hz-1" and "75 Hz-2" are not distinguished for external signals.

[8] QPF (FUNCTION OF THE PANEL)

The command QPF is for acquiring the characteristic and the function setting value of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPF]	Every Time	Output of status	Return data: 3 (ECO) + 69 (DATA) + 2 (CS) = 74 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QPF
1	R-REVISE setting value	1 byte	0
2	G-REVISE setting value	1 byte	0
3	B-REVISE setting value	1 byte	0
4	Reserved	3 byte	***
5	ADDRESS L1,L2 setting value	2 byte	01
6	ADDRESS L3,L4 setting value	2 byte	13
7	ADDRESS U1,U2 setting value	2 byte	32
8	ADDRESS U3,U4 setting value	2 byte	30
9	Reserved	4 byte	****
10	Streaking correction	1 byte	1
11	Full-screen black display mode	1 byte	1
12	Reserved	4 byte	****
13	PANEL RX	3 byte	512
14	PANEL RY	3 byte	512
15	PANEL GX	3 byte	512
16	PANEL GY	3 byte	512
17	PANEL BX	3 byte	512
18	PANEL BY	3 byte	512
19	Reserved	6 byte	******
20	Color sensor R coefficient	3 byte	***
21	Color sensor G coefficient	3 byte	***
22	Color sensor B coefficient	3 byte	***
23	Reserved	12 byte	** to **
CS	2 Byte	2 byte	37

1: 2: 3: RGB-REVISE setting value	
n	n: 0 to 7 (Level n)

5 to 8: ADDRESS α, β setting	
nm	n: 0 to 9 (Address α setting PHASE n)
	m: 0 to 9 (Address β setting PHASE m)

10: Streaking correction	
0	OFF
n	n: 1 to 8 (Mode n)

11: Full-screen black display mode	
0	OFF (In-phase SUS drive prohibition)
1	MODE1 (In-phase SUS drive permission)

[9] QPM (PULSE METER VALUE)

The command QPM is for acquiring the accumulated pulse count.

Command Format	Effective Operation Modes	Function	Remarks
[QPM]	Every Time	Output of status	Return data: 3 (ECO) + 40 (DATA) + 2 (CS) = 45 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QPM
1	Pulse meter B 1	8 byte	00000000
2	Pulse meter B 2	8 byte	00000000
3	Pulse meter B 3	8 byte	00000000
4	Pulse meter B 4	8 byte	00000000
5	Pulse meter B 5	8 byte	00000000
CS	2 Byte	2 byte	E7

Note:
The minimum for a returned value of the pulse meter for each block (B1-B2) is one million.

[10] QPD (POWER DOWN LOGS)

The command QPD is for acquiring data from the 8 latest power-down (PD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QPD]	Every Time	Output of status	Return data: 3 (ECO) + 80 (DATA) + 2 (CS) = 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QPD
1	Latest "1st PD" data	1 byte	A
2	Latest "2nd PD" data	1 byte	2
3	Data from the hour meter for the latest PD	8 byte	00010020
4	Second latest "1st PD" data	1 byte	E
5	Second latest "2nd PD" data	1 byte	9
6	Data from the hour meter for the second latest PD	8 byte	00008523
7	Third latest "1st PD" data	1 byte	4
8	Third latest "2nd PD" data	1 byte	3
9	Data from the hour meter for the third latest PD	8 byte	00004335
10	Fourth latest "1st PD" data	1 byte	2
11	Fourth latest "2nd PD" data	1 byte	0
12	Data from the hour meter for the fourth latest PD	8 byte	00000945
13	Fifth latest "1st PD" data	1 byte	4
14	Fifth latest "2nd PD" data	1 byte	0
15	Data from the hour meter for the fifth latest PD	8 byte	00000715
16	Sixth latest "1st PD" data	1 byte	A
17	Sixth latest "2nd PD" data	1 byte	2
18	Data from the hour meter for the sixth latest PD	8 byte	00000552
19	Seventh latest "1st PD" data	1 byte	A
20	Seventh latest "2nd PD" data	1 byte	0
21	Data from the hour meter for the seventh latest PD	8 byte	00000213
22	Eighth latest "1st PD" data	1 byte	D
23	Eighth latest "2nd PD" data	1 byte	0
24	Data from the hour meter for the eighth latest PD	8 byte	000001A7
CS	2 Byte	2 byte	27

• PD data	
0	No PD
2	P-POWER
3	SCAN
4	SCN-5V
6	Y-DCDC
7	Y-SUS
8	Address
A	X-DCDC
B	X-SUS
C	DIGI-DCDC
F	UNKNOWN

[11] QSD (SHUTDOWN LOGS of the Panel Section)

The command QSD is for acquiring the data from the 8 latest shutdown (SD) logs of the panel section.

Command Format	Effective Operation Modes	Function	Remarks
[QSD]	Every Time	Output of status	Return data: 3 (ECO) + 80 (DATA) + 2 (CS) = 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QSD
1	Latest SD data	1 byte	1
2	Latest SD subcategory data	1 byte	0
3	Data from the hour meter for the latest SD	8 byte	00752013
4	Second latest SD data	1 byte	5
5	Second latest SD subcategory data	1 byte	0
6	Data from the hour meter for the second latest SD	8 byte	00495204
7	Third latest SD data	1 byte	2
8	Third latest SD subcategory data	1 byte	3
9	Data from the hour meter for the third latest SD	8 byte	00100355
10	Fourth latest SD data	1 byte	2
11	Fourth latest SD subcategory data	1 byte	5
12	Data from the hour meter for the fourth latest SD	8 byte	00075620
13	Fifth latest SD data	1 byte	1
14	Fifth latest SD subcategory data	1 byte	0
15	Data from the hour meter for the fifth latest SD	8 byte	00000852
16	Sixth latest SD data	1 byte	2
17	Sixth latest SD subcategory data	1 byte	2
18	Data from the hour meter for the sixth latest SD	8 byte	00000451
19	Seventh latest SD data	1 byte	0
20	Seventh latest SD subcategory data	1 byte	0
21	Data from the hour meter for the seventh latest SD	8 byte	00000000
22	Eighth latest SD data	1 byte	0
23	Eighth latest SD subcategory data	1 byte	0
24	Data from the hour meter for the eighth latest SD	8 byte	00000000
CS	2 Byte	2 Byte	7D

• SD data	
0	No SD
1	SQ_LSI
2	MDU-DEVICE
3	RST2
4	Panel temperature

• SD subcategory (SQ_LSI)	
0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
4	Version mismatching (H/S)
5	Version mismatching (H/M)
6	Version mismatching (H/I)

• SD subcategory (MDU-DEVICE)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

• SD subcategory (Panel temperature)	
0	No SD-Sub data
1	TEMP1 (high temperature)
2	TEMP1 (low temperature)

[12] QSE (DESTINATION PECULIAR INFORMATION)

Induce it peculiar, individual information is acquired.

Command Format	Effective Operation Modes	Function	Remarks
[QSE]	Every time	Output of status	Return data: 3 (ECO) + 28 (DATA) + 2 (CS) = 33 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QSE
1	Check flag for production	1 byte	E
2	Reserved	3 byte	***
3	DTB HARDWARE version	4 byte	0342
4	Reserved	16 byte	****************
5	User setting password	4 byte	1234
CS	Check Sum	2 byte	13

[13] QMT (STATUS INFORMATION OF MTB/MR SECTION)

Temperature information / FAN rotation state / Room light sensor information on the MTB/MR section is acquired.

Command Format	Effective Operation Modes	Function	Remarks
[QMT]	Every time	Output of status	Return data: 3 (ECO) + 8 (DATA) = 11 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QMT
1	A/D value of temperature of MTB/MR section	3 byte	276
2	FAN rotating speed of MTB/MR section (0: STOP, 1: LOW, 2: HIGH)	1 byte	1
3	A/D value of room light sensor	3 byte	009
4	Level of room light sensor (Value: 1 to 5)	1 byte	5

* Returned each block.

[14] QNG (SHUTDOWN INFORMATION OF MTB SECTION)

The command QNG is for acquiring the data from the 8 latest shutdown (SD) logs of the MTB section.

Command Format	Effective Operation Modes	Function	Remarks
[QNG]	Every time	To acquire data on the shutdown (NG) logs of MTB side	Return data: 3 (ECO) + 96 (DATA) + 2 (CS) = 101 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QNG
1	Latest SD data	1 byte	1
2	Latest SD subcategory data	1 byte	0
3	Data from the MTB hour meter for the latest SD	7 byte	0752013
4	Reserved	3 byte	000 fixed
5	Second latest SD data	1 byte	5
6	Second latest SD subcategory data	1 byte	1
7	Data from the MTB hour meter for the second latest SD	7 byte	0495204
8	Reserved	3 byte	000 fixed
9	Third latest SD data	1 byte	A
10	Third latest SD subcategory data	1 byte	2
11	Data from the MTB hour meter for the third latest SD	7 byte	0365814
12	Reserved	3 byte	000 fixed
13	Fourth latest SD data	1 byte	5
14	Fourth latest SD subcategory data	1 byte	0
15	Data from the MTB hour meter for the fourth latest SD	7 byte	0256612
16	Reserved	3 byte	000 fixed
17	Fifth latest SD data	1 byte	7
18	Fifth latest SD subcategory data	1 byte	2
19	Data from the MTB hour meter for the fifth latest SD	7 byte	0105628
20	Reserved	3 byte	000 fixed
21	Sixth latest SD data	1 byte	B
22	Sixth latest SD subcategory data	1 byte	0
23	Data from the MTB hour meter for the sixth latest SD	7 byte	0003009
24	Reserved	3 byte	000 fixed
25	Seventh latest SD data	1 byte	C
26	Seventh latest SD subcategory data	1 byte	1
27	Data from the MTB hour meter for the seventh latest SD	7 byte	00002A9
28	Reserved	3 byte	000 fixed
29	Eighth latest SD data	1 byte	C
30	Eighth latest SD subcategory data	1 byte	4
31	Data from the MTB hour meter for the eighth latest SD	7 byte	0000012
32	Reserved	3 byte	000 fixed
CS	2 Byte	2 Byte	7D

< SD Information No. >

Frequency *	Shutdown Factor	Remarks (Operation)
1	Failure of Power Supply of VCC	Immediately Shutdown
5	Shutdown signal from D-Amp. / short-circuit of speaker terminal	Go to No. 5 Subcategory Information
6	Failure of communication with Module microcomputer	Immediately Shutdown
7	Failure in 3-wire serial communication of Main microcomputer	Go to No. 7 Subcategory Information
8	Failure in IIC communication of Main microcomputer	Go to No. 8 Subcategory Information
9	Failure in Communication of Main microcomputer	Immediately Shutdown
10(A)	Abnormally in FAN	Go to No. 10 Subcategory Information
11(B)	Abnormally in high temperature	Immediately Shutdown
12(C)	Failure in Digital Tuner	Go to No. 12 Subcategory Information
13(D)	Failure in Power Supply at MTB section	Go to No. 13 Subcategory Information
15(F)	Failure in Main EEPROM	Immediately Shutdown

∗: Indicates the frequency of Blue LED flashing when the shutdown is occurred.

< No. 5 Subcategory Information on "Shutdown signal from D-Amp./short-circuit of speaker terminal" >

Value	Shutdown Factor	Remarks (Operation)
1	A_NG	Shutdown after 5 seconds warning
2	OTW	Shutdown after 5 seconds warning

< No. 7 Subcategory Information on "Failure in 3-wire serial communication of Main microcomputer" >

Value	Shutdown Factor	Remarks (Operation)
1	Communication error of IF microcomputer	Immediately Shutdown
2	Communication error of ARIA	Immediately Shutdown

< No. 8 Subcategory Information on "Failure in IIC communication of Main microcomputer" >

Value	Shutdown Factor	Remarks (Operation)
1	Tuner 1	Immediately Shutdown
2	MSP/MAP	Immediately Shutdown
3	AV-Switch	Immediately Shutdown
4	RGB-Switch	Immediately Shutdown
5	Main VDEC	Immediately Shutdown
6	VDEC-SDRAM	Immediately Shutdown
7	AD/PLL	Immediately Shutdown
8	HDMI	Immediately Shutdown
9	DisplayPortTx	Immediately Shutdown
B	US-MAP	Immediately Shutdown
C	GCR	Immediately Shutdown
D	COFDM	Immediately Shutdown

< No. 10 Subcategory Information on "Abnormally in FAN" >

Value	Shutdown Factor	Remarks (Operation)
1	FAN 1	Immediately Shutdown
2	FAN 2	Immediately Shutdown

< No. 12 Subcategory Information on "Failure in Digital Tuner" >

Value	Shutdown Factor	Remarks (Operation)
1	Starting error of the digital tuner	Communication stop
2	Communication error with the digital tuner	
3	DTB device error	
4	Abnormmally in BCM7038	
5	Fugue	
6	Audio Chip	
7	Tuner 1/Tuner 1 or 2	
8	Card I/F IC	
9	VBI Slicer	
B	Flash	
C	EEPROM	
D	EEPROM	
F	DTV Antenna	
G	Home Gallery	
I	Application	
J	DEMOD(US)/COFDM(EU)	
K	Tuner 2	
L	S2DEMOD	
M	LNB	

< No. 13 Subcategory Information on "Failure in Power supply at MTB section" >

Value	Shutdown Factor	Remarks (Operation)
1	RST 2	Immediately Shutdown
2	RST 4	Immediately Shutdown

[15] QSI (INPUT SIGNAL DATA)

The command QSI is for acquiring all data on input video signals.

Command Format	Effective Operation Modes	Function	Remarks
[QSI]	Every Time	Output of status	Return data: 3 (ECO) + 66 (DATA) + 2 (CS) = 71 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QSI
1	Type of drive sequence (Note)	4 Byte	60VS
2	Type of ABL adjustment table (Note)	1 Byte	1
3	Type of WB adjustment table (Note)	1 Byte	1
4	Reserved	4 Byte	****
5	Total value of PRH	4 Byte	0256
6	Total value of PGH	4 Byte	0256
7	Total value of PBH	4 Byte	0256
8	Reserved	4 Byte	****
9	Total value of PRL	4 Byte	0512
10	Total value of PGL	4 Byte	0512
11	Total value of PBL	4 Byte	0512
12	Total value of ABL	3 Byte	128
13	V frequency distinction	4 Byte	6002
14	Reserved	4 Byte	****
15	APL acquiring data	4 Byte	1023
16	Number of SUS pulses	4 Byte	0457
17	Detection status of still picture	1 Byte	1
18	Detection status of cracking in the panel	1 Byte	1
19	Detection status of SCAN protection	1 Byte	1
20	Detection status of external protection	1 Byte	1
21	Transition of protection operations	1 Byte	0
22	Address emergency status	1 Byte	1
23	Detection status of reset operation	1 Byte	1
24	In-phase SUS mode status	1 Byte	1
25	Reserved	1 Byte	1
CS	2 Byte	2 Byte	27

Note: The types of drive sequence and ABL/WB table are output as the same data as QPW.

18 to 20: Each protection function	
0	Setting: OFF
1	Setting: ON (during wait)
2	Setting: ON (during operation)

21: Transition of protection operations	
0	Upper limit status for brightness
1	Brightness being reduced
2	Lower limit status for brightness
3	Brightness being increased

22: Address emergency status	
0	Normal status
1	Emergency status

23: Reset operation status	
A	All reset operation
2	Interlace 1/2 reset operation
4	Interlace 1/4 reset operation
L	Reset less operation (specifications operation)

24: In-phase SUS mode status	
0	Normal status
1	In-phase SUS mode status
2	Assist status at the cancellation

[16] DRV (PANEL DRIVE-POWER ON/OFF)

Panel drive-power ON/OFF (drive ON/OFF) is controllable.

Command Format	Operation		Remarks
	Effective Operation Modes	Function	
[DRV+S00]	Every time	DRIVE OFF	If a command is issued in Standby mode, and the unit is left unoperated for more than 10 seconds, the command will become void.
[DRV+S01]	Every time	DRIVE ON (default)	

Note: The function of the DRIVE OFF key on the remote control unit for servicing is the same as that of the DRVS00 command.
(A function equivalent to that of the DRVS01 command is not provided for the remote control unit for servicing.)

[17] FAY/FAN (ADJUSTMENT COMMANDS PERMISSION/PROHIBITION)

The commands FAY/FAN are for prohibiting/permitting panel/MTB-adjustment commands.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAY]	Normal operation mode while the power is on	Adjustment command is valid.	For details, refer to the section “6.1 [3] FUNCTIONS WHEN ENTERING THE SERVICE FACTORY MODE”.
[FAN]	During FAY	Adjustment command is invalid.	

[18] FAJ/UAJ/CBU/BCP (BACKUP FUNCTION FOR ADJUSTMENT VALUE)

When the DIGITAL Assy is to be replaced, adjustment values can be copied from the backup EEPROM to the EEPROM of the Assy for service.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAJ]	During FAY	To make the status of the EEPROM on the DIGITAL Assy "adjustment completed" and copy the data to the EEPROM for backup	This takes at least 350 msec.
[UAJ]		To make the status of the EEPROM on the DIGITAL Assy "adjustment not completed"	Only the status is changed, and the real data are not erased.
[CBU]		To make the status of the EEPROM on for backup "adjustment not completed"	Only the status is changed, and the real data are not erased. However, if the status of the EEPROM on the DIGITAL Assy is "adjustment completed," the data in the EEPROM of the DIGITAL Assy will be copied to the EEPROM for backup upon POF.
[BCP]		To copy the backup data from the EEPROM for backup to the EEPROM on the DIGITAL Assy	

6. SERVICE FACTORY MODE

6.1 OUTLINE OF THE SERVICE FACTORY MODE

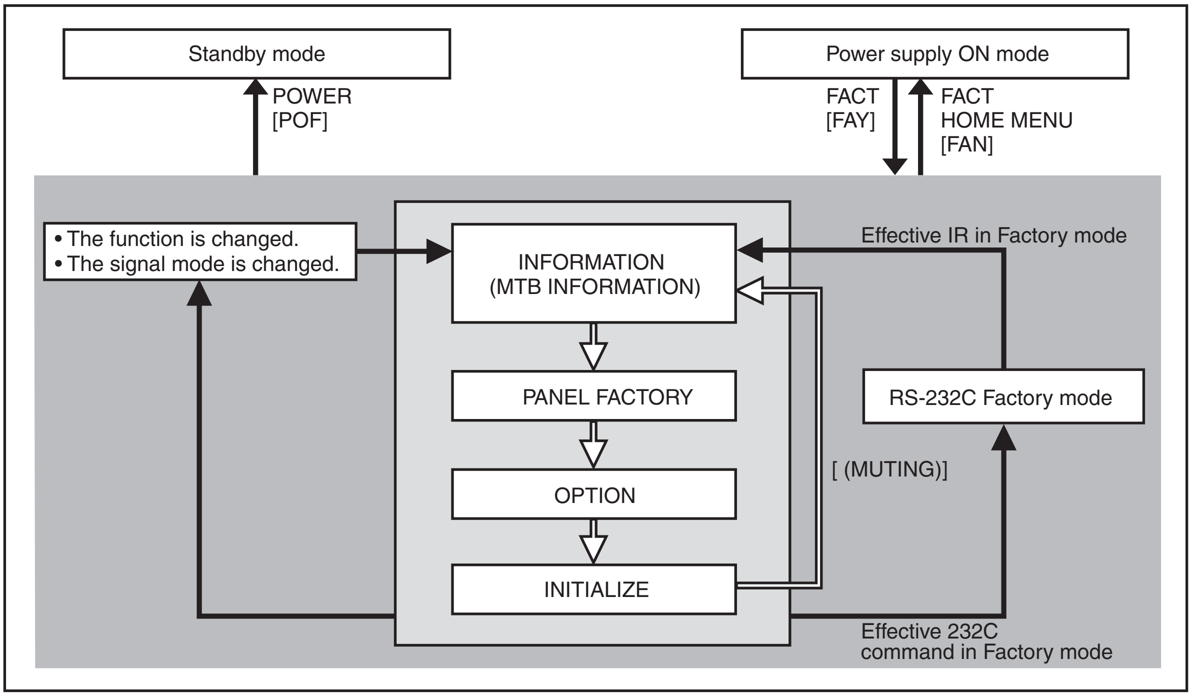
Operations during Service Factory mode are described here.

Before entering Factory mode of the PDP, make sure that the "HD AV Converter" setting on the PDP menu is set to "Disable." If it is set to "Enable," change it to "Disable" then enter Factory mode.

To confirm the "HD AV Converter" setting on the PDP menu, proceed as follows:
Select HOME MENU, Option, then HD AV Converter in HDMI Control Setting.

Note: If "HD AV Converter" is set to "Enable," the video/audio signals will not be displayed/output even if external equipment is connected via input connectors other than INPUT 4 of the PDP.

[1] SERVICE FACTORY MODE TRANSITION CHART


Standby mode
Power supply ON mode
POWER
[POF]
FACT
[FAY]
FACT
HOME MENU
[FAN]
• The function is changed.
• The signal mode is changed.
INFORMATION
(MTB INFORMATION)
PANEL FACTORY
OPTION
INITIALIZE
Effective IR in Factory mode
RS-232C Factory mode
[(MUTING)]
Effective 232C
command in Factory mode

[2] HOW TO ENTER/EXIT SERVICE FACTORY MODE

■ **How to enter Service Factory Mode**

By using a PDP service remote control)
- PDP service remote control : Press [FACTORY] key.

By issuing RS-232C commands)
- During normal Standby mode : Issue [PON] then [FAY].
- During normal operation mode : Issue [FAY].

■ **How to exit Service Factory Mode**

By using a PDP service remote control)
- PDP service remote control : press [FACTORY] key.
- Supplied remote control unit : press [HOME MENU] key.

By issuing RS-232C commands)
- Issue [FAN].

■ **How to enter Service Factory Mode by Using the supplied Remote Control Unit**

- From this model, can not enter the Service Factory Mode by operating the supplied remote control unit keys.

A

[3] FUNCTIONS WHEN ENTERING THE SERVICE FACTORY MODE

■ Fuctions whose setting are set to OFF

The settings for the following functions are set to OFF when Service Factory mode is entered (including when the “FAY” command is received) :

Function	Remarks
2-Screen Operation	Input function set on the main side is selected.
FREEZE	
Auto size, Side Mask	It is not performed during Factory mode.
ORBITER, Mask control	Central value operation (ORBITER)
Sleep Timer	Cancel the operation.
Room light sensor	Turn off the detecting operation (Setting data will be retained.)
Blue LED dimmer	Turn off the operation (Setting data will be retained.)
Setting of Parental Control	When this is turned off, the block of the screen is released.
Power Control	Turn off the operation (However, the setting maintains it.)
Image Position	Central value operation

Note: Enter the factory after cancelling ACI because the ACI operation setting OFF and not done.

B

C

■ User data

User data will be treated as follows :

- User data on picture-quality and audio-quality adjustments are not reflected, and factory-preset data are output (user data will be retained in memory). When the unit enters Service Factory mode, the current audio-quality adjustment data will be still be retained in memory.
- User-setting data will be applied to the various settings (items on the menus), signal formats, and the items that are associated with path change (HDMI settings, etc.).
- Data on screen (i.e., screen position; meaning clock dividers, and not including data on screen size).
  Are reset to the default values (data stored in memory will be retained).
  Screen size will be retained.

D

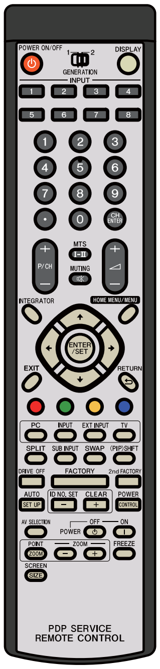
E

F

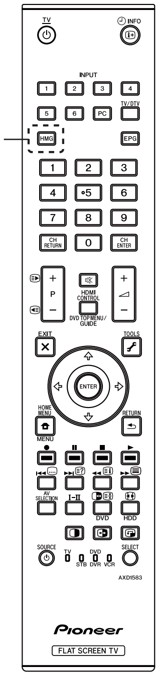
[4] REMOTE CONTROL CODE IN SERVICE FACTORY MODE

Remote Control Keys	Basic Functions	Remarks
MUTING	Switching the main items.	Shifting to the next main item (top).
⬇ (DOWN)	Switching the subtitled items.	Shifting downward to the next subtitiled item.
⬆ (UP)	Switching the subtitled items.	Shifting upward to the next upper layer.
⬅ (LEFT)	Decreasing the adjustment value.	Decreasing the adjustment value.
➡ (RIGHT)	Increasing the adjustment value.	Increasing the adjustment value.
ENTER/SET	Switching the layers.	Shifting downward or upward to the next lower or upper layer.
INPUT	Selecting INPUT.	Shifting the INPUT to the next function.
INPUTxx	Selecting INPUT.	Switching the INPUT to xx. (xx=1 to 6 etc)
CH+/P+	Increasing the channel number.	
CH-/P-	Decreasing the channel number.	
Numeric Keys	Function: TV	Function: TV (previously selected channel number is selected)
POWER	Power OFF.	Turning the power off.
FACTORY	Factory OFF (Factory mode)	In Factory mode, turning Factory mode off.
	Factory ON (Non-Factory mode).	In Non-Factory mode, turn Fuctory mode on.
HOME MENU	Menu ON.	In Factory mode, turn Factory mode off.
VOLUME+	Volume UP.	Increasing 10 the adjustment value. (PANEL FACTORY)
VOLUME-	Volume DOWN.	Decreasing 10 the adjustment value. (PANEL FACTORY)
DRIVE OFF (Note1)	Drive Mode OFF.	Turning Drive mode off.
INTEGRATOR	INTEGRATOR MENU ON.	Enter INTEGRATOR MODE.

(Note 1) When ten seconds have passed since the [DRIVE OFF] key was pressed at the standby, it becomes invalid.
Please press [POWER] key from the [DRIVE OFF] key pressing within ten seconds when you do power supply ON while driven OFF.


POWER ON/OFF
DISPLAY
GENERATION
INPUT
P/CH
MTS
MUTING
INTEGRATOR
HOME MENU / MENU
ENTER /SET
EXIT
RETURN
PC
INPUT
EXT INPUT
TV
SPLIT
SUB INPUT
SWAP
(PIP)SHIFT
DRIVE OFF
FACTORY
2nd FACTORY
AUTO
ID NO. SET
CLEAR
POWER
SET UP
CONTROL
AV SELECTION
POWER
OFF
ON
POINT
ZOOM
FREEZE
SCREEN
SIZE
PDP SERVICE
REMOTE CONTROL

PDP service
remote control

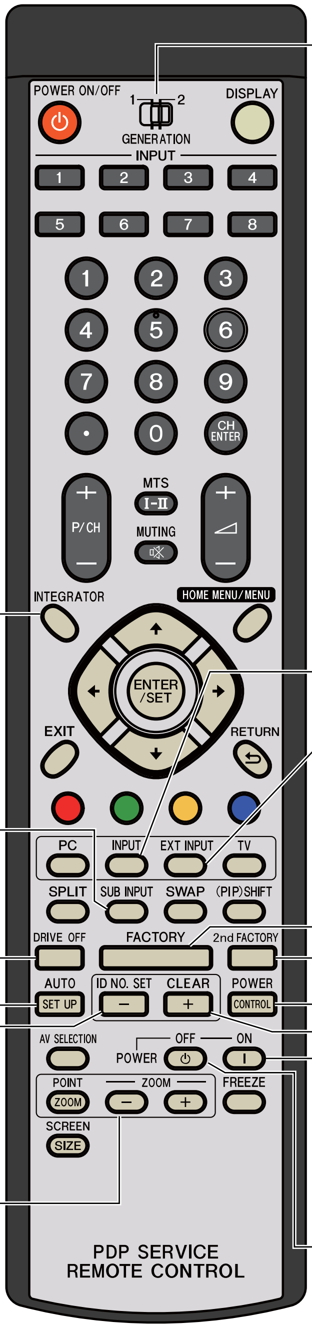

TV
INFO
INPUT
PC
TV/DTV
HMG
EPG
CH RETURN
CH ENTER
P
HDMI CONTROL
DVD TOP MENU/ GUIDE
EXIT
TOOLS
ENTER
HOME MENU
RETURN
MENU
DVD
HDD
SOURCE
SELECT
TV
DVD
STB
DVR
VCR
AXD1583
Pioneer
FLAT SCREEN TV

PDP-LX509A
only

Supplied
remote control

[5] PDP SERVICE REMOTE CONTROL

- The keys labeled with the same names on the service remote control unit have the same functions as those of the supplied remote control unit. (See "2.3 PANEL FACILITIES.")
- For the keys not provided on the supplied remote control unit, see the explanations below:


POWER ON/OFF
1
2
GENERATION
DISPLAY
INPUT
1
2
3
4
5
6
7
8
1
2
3
4
5
6
7
8
9
•
0
CH ENTER
MTS
I-II
P/CH
MUTING
INTEGRATOR
HOME MENU/MENU
ENTER /SET
EXIT
RETURN
PC
INPUT
EXT INPUT
TV
SPLIT
SUB INPUT
SWAP
(PIP)SHIFT
DRIVE OFF
FACTORY
2nd FACTORY
AUTO
SET UP
ID NO. SET
CLEAR
POWER
CONTROL
AV SELECTION
OFF
ON
POWER
POINT
ZOOM
ZOOM
FREEZE
SCREEN
SIZE
PDP SERVICE
REMOTE CONTROL

GENERATION switch for remote control codes
This switch selects the generation of remote control codes to be transmitted:
1: The old-generation codes are transmitted.
2: The new-generation codes are transmitted.
With this generation plasma display, set the switch to 2.

INTEGRATOR
Press this key to enter Integrator mode.

INPUT
Press this key to cyclically change the input source.

EXT INPUT
Press this key to cyclically change only the external input source.

SUB INPUT
Not used with this model.

DRIVE OFF
Press this key to turn off the panel drive.
For details on how to cancel this command, see the explanation for the DRV command.

FACTORY
Press this key to enter Factory mode.

2nd FACTORY
Not used with this model.

AUTO SETUP
Use this key for automatic setup, such as the display position setting when an analog PC signal is input.

ID NO. SET
Not used with this model.

POWER CONTROL
Not used with this model.

CLEAR
Not used with this model.

POWER ON
Press this key to turn on the unit.
This key cannot turn the unit off.

POWER OFF
Press this key to turn off the unit.
This key cannot turn the unit on.

POINT ZOOM
Not used with this model.

ZOOM +/-
Not used with this model.

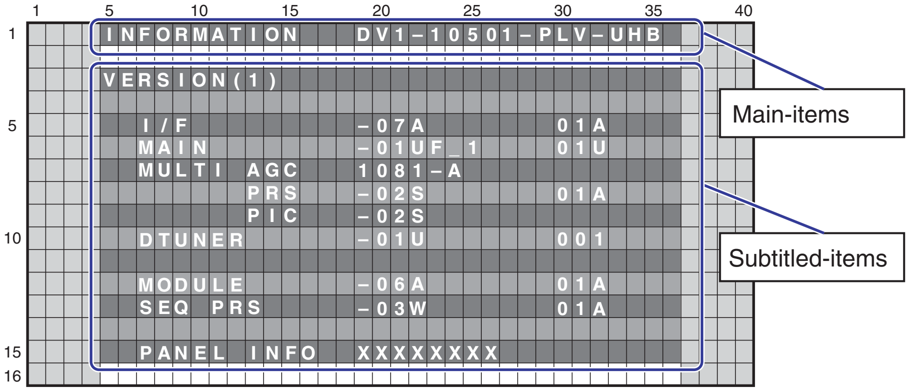
[6] FACTORY HIERARCHICAL TABLE

Large Item	Middle Item	Small Item	Variable / Adjustment Range	Remarks
6.2 [1] INFORMATION				
	[1-1] VERSION (1)			
	[1-2] VERSION (2)			
	[1-3] MAIN NG	CLEAR <=>	NO <=> YES	
	[1-4] TEMPERATURE			
	[1-5] HOUR METER	CLEAR <=>	NO <=> YES	
	[1-6] HDMI SIGNAL INFO 1			
	[1-7] HDMI SIGNAL INFO 2			
	[1-8] VDEC SIGNAL INFO 1			
	[1-9] VDEC SIGNAL INFO 2			
6.2 [2] PANEL FACTORY (+)				
	[2-1] PANEL INFORMATION			
	[2-2] PANEL WORKS			
	[2-3] POWER DOWN			
	[2-4] SHUT DOWN			
	[2-5] PANEL-1 ADJ (+)	VOL SUS <=>	000 to 255	
		VOL OFFSET <=>	000 to 255	
		VOL RST P <=>	000 to 255	
		VOL XPOFS1 <=>	000 to 255	
		VOL XPOFS2 <=>	000 to 255	
		VOL YKNOFS1 D <=>	000 to 255	
		VOL YKNOFS3 D <=>	000 to 255	
		VOL YKNOFS4 D <=>	000 to 255	
		VOL YKNOFSA D <=>	000 to 255	
		RESET1ST_KSB <=>	112 to 144	
		RESET2ND_KSB <=>	112 to 144	
		YSTL_1SF_KSB <=>	112 to 144	
		YSTL_1SF_HZ <=>	112 to 144	
		XSUS_1ST_B <=>	112 to 144	
		YSUS_2ND_B <=>	112 to 144	
		XSUS_3RD_B <=>	112 to 144	
		YSUS_B <=>	112 to 144	
		XSUS_B <=>	112 to 144	
		YSTL_KSB <=>	112 to 144	
		YSTL_HZ <=>	112 to 144	
		YSTL_2SF_KSB <=>	112 to 144	
		YSTL_2SF_HZ <=>	112 to 144	
		YSTL_FMR_KSB <=>	112 to 144	
		SCAN ADRS ADJ <=>	112 to 144	
		SUS FREQ <=>	<=> MODE 1 to MODE 8 <=>	
	[2-6] PANEL-2 ADJ (+)	R-HIGH <=>	000 to 999	
		G-HIGH <=>	000 to 999	
		B-HIGH <=>	000 to 999	
		R-LOW <=>	000 to 999	
		G-LOW <=>	000 to 999	
		B-LOW <=>	000 to 999	
		ABL <=>	000 to 255	
	[2-7] PANEL FUNCTION (+)	R-LEVEL <=>	<=> LV-0 to LV-7 <=>	
		G-LEVEL <=>	<=> LV-0 to LV-7 <=>	
		B-LEVEL <=>	<=> LV-0 to LV-7 <=>	
		ADDRESS L1 <=>	<=> PH0 to PH9 <=>	
		ADDRESS L2 <=>	<=> PH0 to PH9 <=>	
		ADDRESS L3 <=>	<=> PH0 to PH9<=>	
		ADDRESS L4 <=>	<=> PH0 to PH9 <=>	
		ADDRESS U1 <=>	<=> PH0 to PH9 <=>	
		ADDRESS U2 <=>	<=> PH0 to PH9 <=>	
		ADDRESS U3 <=>	<=> PH0 to PH9 <=>	
		ADDRESS U4 <=>	<=> PH0 to PH9<=>	
		STK MODE <=>	OFF <=> MODE1 to MODE8 <=>	
		FULL BLACK <=>	MODE1 <=> OFF	
		PANEL RX <=>	000 to 999	
		PANEL RY <=>	000 to 999	
		PANEL GX <=>	000 to 999	
		PANEL GY <=>	000 to 999	
		PANEL BX <=>	000 to 999	
		PANEL BY <=>	000 to 999	
		CLS R <=>	000 to 255	
		CLS G <=>	000 to 255	
		CLS B <=>	000 to 255	

Large Item	Middle Item	Small Item	Variable / Adjustment Range	Remarks
6.2 [2] PANEL FACTORY (+)				
	[2-8] ETC. (+)	BACKUP DATA <=>	NO OPRT <=> TRANSFER/ERR	
		DIGITAL EEPROM <=>	NO OPRT <=> DELETE/REPAIR	
		PD INFO. <=>	NO OPRT <=> CLEAR	
		SD INFO. <=>	NO OPRT <=> CLEAR	
		HR-MTR INFO. <=>	NO OPRT <=> CLEAR	
		PM/B1-B5 <=>	NO OPRT <=> CLEAR	
		P COUNT INFO. <=>	NO OPRT <=> CLEAR	
		MAX TEMP. <=>	NO OPRT <=> CLEAR	
		MIRROR <=>	OFF <=> MODE1 to MODE3 <=>	
		CLS <=>	OFF <=> ON	
	[2-9] RASTER MASK SETUP (+)	MASK OFF	<=> 50V <=> 60V <=> 60P <=> 72V <=> 75V1 <=> 75V2 <=>	
		RST MASK 01 <=>		
		• • •		
		RST MASK 25 <=>		
	[2-10] PATTERN MASK SETUP (+)	MASK OFF	<=> 50V <=> 60V <=> 60P <=> 72V <=> 75V1 <=> 75V2 <=>	
		PTN MASK 01 <=>		
		• • •		
		PTN MASK 49 <=>		
	[2-11] COMBI MASK SETUP (+)	MASK OFF	<=> 50V <=> 60V <=> 60P <=> 72V <=> 75V1 <=> 75V2 <=>	
		CMB MASK 01 <=>		
		• • •		
		CMB MASK 17 <=>		
6.2 [3] OPTION				
	[3-1] CH PRESET <=>		DISABLE <=> ENABLE	Exclusively used for production line
	[3-2] SYNC DET (+)			for the technical analysis
	[3-3] CTI (+)			for the technical analysis
6.2 [4] INITIALIZE				
	[4-1] SIDE MASK LEVEL (+)	SIDE MASK LEVEL <=>		
	[4-2] FINAL SETUP	DATA RESET <=>	NO <=> YES	
	[4-3] DTB SERVICE MODE	MODE SHIFT <=>	NO <=> YES	for the technical analysis (*1)
	[4-4] Wide XGA AUTO <=>		DISABLE <=> ENABLE	for the technical analysis
	[4-5] AUTO ADJUST. <=>	AUTO ADJUST. <=>	NO <=> YES	

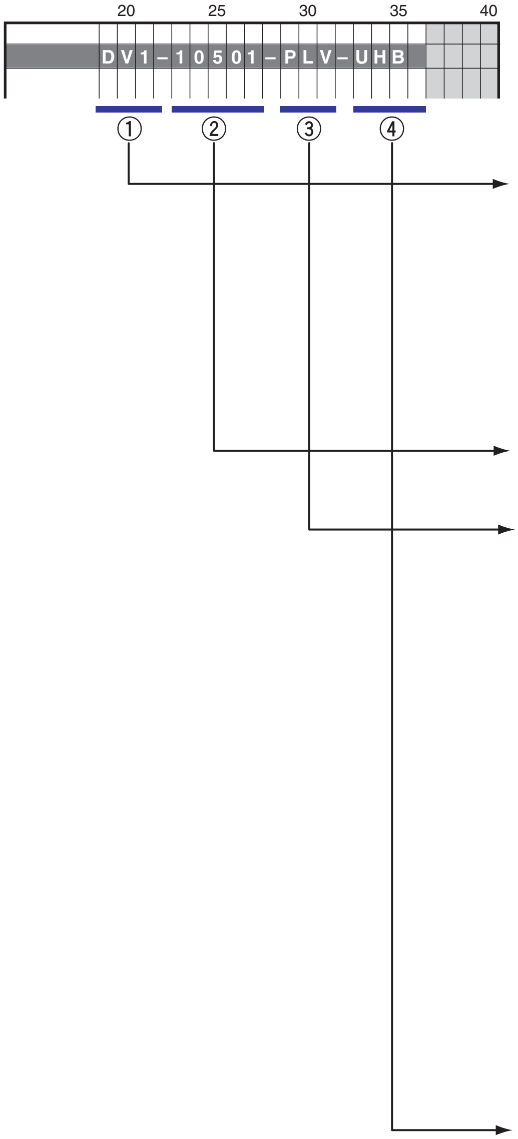
(*1): Exit the Service Factory Menu and enter the Digital Tuner Service menu.

[7] INDICATIONS IN SERVICE FACTORY MODE



```
    INFORMATION   DV1–10501–PLV–UHB

    VERSION(1)

      I/F         –07A       01A
      MAIN        –01UF_1    01U
      MULTI AGC   1081–A
            PRS   –02S       01A
            PIC   –02S
      DTUNER      –01U       001

      MODULE      –06A       01A
      SEQ PRS     –03W       01A

      PANEL INFO  XXXXXXXX
```

Main-item indications



① Input function

Input Functions	OSD
DV 1 to 6	DV 1 to 6
Terrestrial Wave (Analog)	AIR
Terrestrial Wave (Digital)	ARD
Cable (Digital)	CBD
Home Media Gallery	HMG
PC	PC

② SIG mode and Screen size

Note: See SIG-Mode Tables. (See next page.)

③ Color system and Signal type

Color System and Signal Type	OSD	
	At Composite Input	At S-connector Input
NTSC	NTV	NTS
PAL	PLV	PLS
PAL M	PMV	PMS
PAL N	PNV	PNS
PAL 60	P6V	P6S
SECAM	SCV	SCS
4.43 NTSC	4NV	4NS
BLACK/WHITE	BWV	BWS
Y/CB/CR	CBR	
Y/PB/PR	PBR	
RGB	RGB	
Digital Video signal	DIG	

④ Option (Destination, Panel Generation, etc.)

Options	OSD
PDP-LX509A/YP	UHB
PDP-LX609A/YP	
PDP-C509A/YP	UDB

② SIG Mode and Screen size (by User is displayed)

1st and 2nd characters : Resolution of the input signal
3rd and 4th characters : Refresh rate of the input signal
5th character : Selection of the screen size

■ Input signal mode table for video signals (resolutions and V frequencies)

1st to 4th Character		Signal Type	Fv (Hz)	Fh (kHz)
10	50	SDTV*625i	50.000	15.750
	60	SDTV*525i	60.000	15.750
20	50	SDTV*625p	50.000	31.500
	60	SDTV*525p	60.000	31.500
30	50	HDTV*1125i	50.000	33.750
	60	HDTV*1125i	60.000	33.750
40	50	HDTV*750p	50.000	45.000
	60	HDTV*750p	60.000	45.000
50	24	HDTV*1125p	24.000	27.000
	50	HDTV*1125p	50.000	56.250
	60	HDTV*1125p	60.000	67.500

Fv: Vertical Frequency, Fh: Horizontal Frequency

■ Input signal mode table for PC signals (resolutions and V frequencies)

1st to 4th Character		Signal Type	Fv (Hz)	Fh (kHz)
C1	70	720 x 400	70.087	31.469
C2	60	640 x 480	59.940	31.469
C4	60	800 x 600	60.317	37.879
C6	60	1280 x 720	60.000	44.800
C7	60	1024 x 768	60.004	48.363
C9	60	1360 x 768	60.015	47.712
D6	60	1280 x 1024	60.000	64.000

Fv: Vertical Frequency, Fh: Horizontal Frequency

■ Current selection of the screen size

5th Character	GUI Notation	VIDEO	PC	Remarks
0	DOT BY DOT	●	–	
1	4:3	●	●	
2	FULL	●	●	
3	ZOOM	●	–	
4	CINEMA	●	–	
5	WIDE	●	–	
6	FULL 14:9	●	–	
7	CINEMA 14:9	●	–	
9	WIDE1	●	–	
A	WIDE2	●	–	

●: supported, –: unsupported

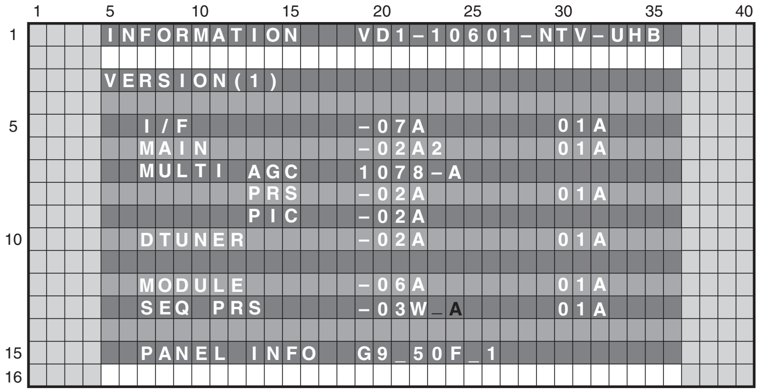
6.2 DETAILS OF FACTORY MENU

[1] INFORMATION

■ Operation items

No.	Function	Content	RS-232C Command
[1-1]	VERSION (1)	The Flash memory versions for each device are displayed.	QS1
[1-2]	VERSION (2)	The Flash memory versions for each device are displayed.	QSE
[1-3]	MAIN NG	The Shutdown NG information and Event Times in the MTB section are displayed.	QNG
[1-4]	TEMPERATURE	The present temperature and the FAN rotating status are displayed.	–
[1-5]	HOUR METER	The accumulation power ON count of the panel is displayed.	–
[1-6]	HDMI SIGNAL INFO 1	The status registers of HDMI receiver are displayed with hexadecimal.	–
[1-7]	HDMI SIGNAL INFO 2		
[1-8]	VDEC SIGNAL INFO 1	Display the signal information input to VDEC.	–
[1-9]	VDEC SIGNAL INFO 2		

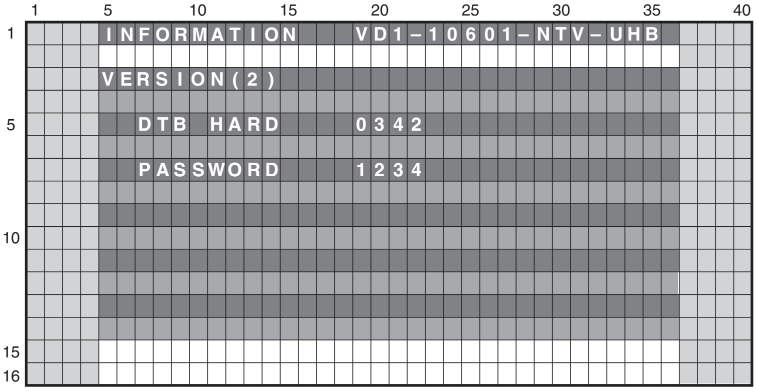
[1-1] VERSION (1)



```
INFORMATION   VD1-10601-NTV-UHB

VERSION(1)

  I/F         -07A       01A
  MAIN        -02A2      01A
  MULTI AGC   1078-A
        PRS   -02A       01A
        PIC   -02A
  DTUNER      -02A       01A

  MODULE      -06A       01A
  SEQ PRS     -03W_A     01A

  PANEL INFO  G9_50F_1
```

Display Item	Meaning	Display Example (Program)	Display Example (Boot)
I/F	I/F microcomputer	-07A	01A
MAIN	Main microcomputer	-02A2	01A
MULTI AGC	AGC data of Multi processor	1078-A	
MULTI PRS	Program of Multi processor	-02A	01A
MULTI PIC	Picture quality data of Multi processor	-02A	
DTUNER	Software program of the Digital tuner	-02A	01A
MODULE	Module microcomputer	-06A	01A
SEQ PRS	Program of Sequence processor	-03W	01A
PANEL INFO	It displays the generation of the panel, inchage and the type of the panel. For details on display values and setting, see “10: Panel information in 5.9 [1] QS1 (PANEL STATUS).”	—	—

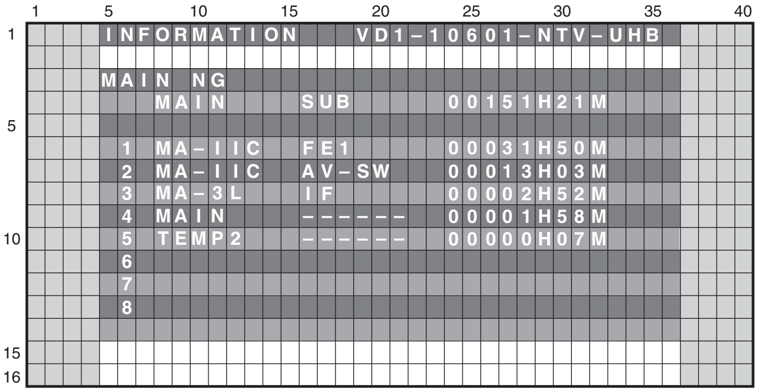
[1-2] VERSION (2)


1
5
10
15
20
25
30
35
40
1
5
10
15
16

```
INFORMATION    VD1-10601-NTV-UHB

VERSION(2)

  DTB HARD       0342

  PASSWORD       1234
```

Display Item	Meaning	Display Example
DTB HARD	DTB Hardware Version	0342
PASSWORD	User setting password	1234

[1-3] MAIN NG



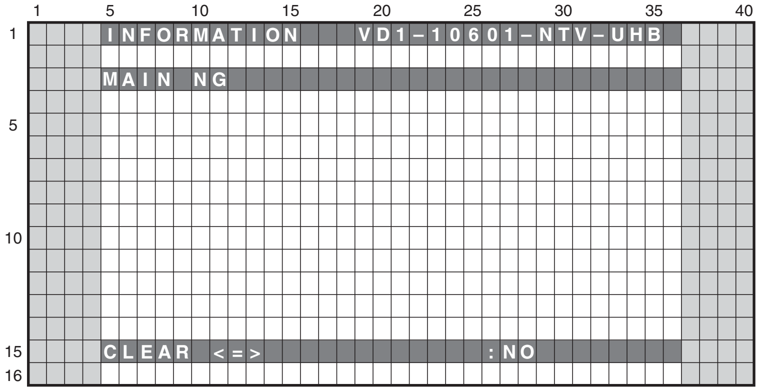
```
INFORMATION     VD1-10601-NTV-UHB

MAIN NG
   MAIN        SUB        00151H21M

   1 MA-IIC    FE1        00031H50M
   2 MA-IIC    AV-SW      00013H03M
   3 MA-3L     IF         00002H52M
   4 MAIN      ------     00001H58M
   5 TEMP2     ------     00000H07M
   6
   7
   8
```

MTB side's Shutdown NG information

Error Display: MAIN	Error Display: SUB	Cause of Shutdown
AUDIO		Short-circuit of the speaker terminal or failure of audio amplifier.
	AUDIO	Short-circuit of the speaker terminal or failure signal of audio amplifier (MAIN)
	OTW	Short-circuit of the speaker terminal or failure signal of audio amplifier (IF)
MODULE	----	Serial communication error of Module microcomputer.
MA-3L		3-wire Serial Communication error of Main microcomputer.
	IF	Communication error of IF microcomputer
	MULTI	Main communication error of Multi Processor
MA-IIC		IIC Communication error of Main microcomputer
	FE1	Tuner 1
	MSPMAP	MSP/MAP
	AV-SW	AV Switch
	RGB-SW	RGB Switch
	VDEC	Main VDEC
	SDRAM	VDEC - SDRAM
	ADC	AD/PLL
	HDMI	HDMI
	US-MAP	US-MAP
MAIN	----	Communication error of Main microcomputer
FAN		FAN abnormal
	FAN2	FAN2 abnormal stop
TEMP2	----	Abnormally high temperature
DTUNER		Failure in Digital Tuner
	PS/RST	DTB Starting error
	RETRY	Communication error with DTB
	DEVICE	DTB device error
	DE-FE	DTB device error (Tuner 1)
	DTVAPP	DTB device error (Application)
	DEMOD	DTB device error (DEMOD)
	DEMODS	DTB device error (COFDM)
RST-MA		Abnormally in MTB power
	M-DCDC	Abnormally in ASIC power (DC-DC)
	RELAY	Power decrease of RELAY power
MA-EEP	----	Main EEPROM communication error

- **Clear the MAIN NG history**

  In MAIN NG screen on Factory Menu, press the [ENTER/SET] key, and then it moves to the screen to clear the history of MAIN NG.



INFORMATION VD1–10601–NTV–UHB

MAIN NG

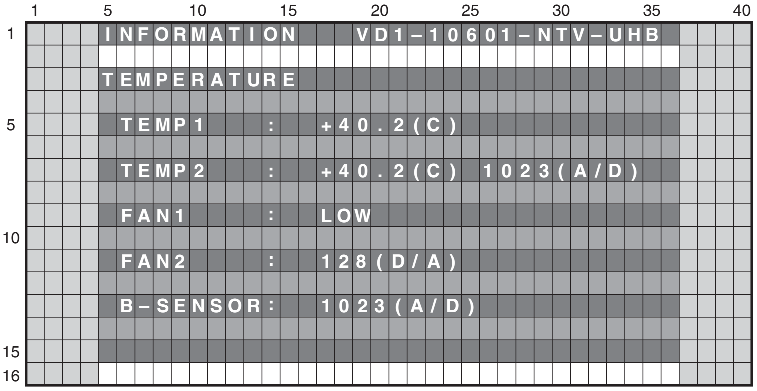
CLEAR <=> :NO

Operation:

- Even if [⬅] key or [➡] key is pressed, {CLEAR <=> :YES} ⇔ {CLEAR <=> :NO} is repeated.
- Selecting <NO> then pressing the [ENTER/SET] key will return the screen to the next higher layer, without doing anything.
- Selecting <YES> then holding the [ENTER/SET] key pressed for 5 seconds will clear the NG log data that are managed in MTB then return the screen to the next higher layer.

[1-4] TEMPERATURE

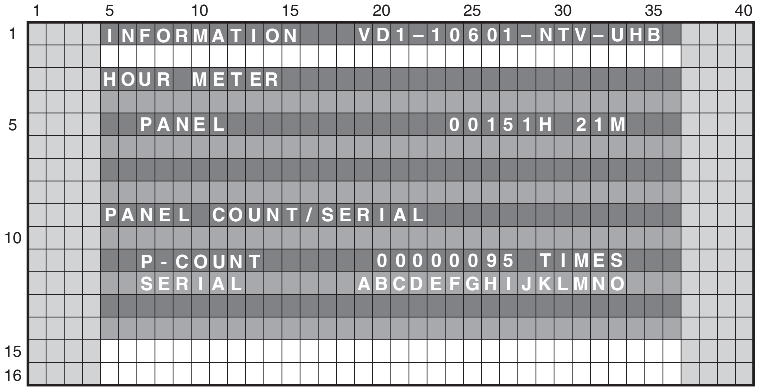
A present temperature and the FAN rotation are displayed.
If either [⬅] key or [➡] key is pressed, the display data is refreshed.



```
    INFORMATION     VD1-10601-NTV-UHB

    TEMPERATURE

     TEMP1     :   +40.2(C)

     TEMP2     :   +40.2(C)  1023(A/D)

     FAN1      :   LOW

     FAN2      :   128(D/A)

     B-SENSOR:     1023(A/D)
```

Display Item	Meaning
TEMP1	The temperature of the sensor on the panel side is displayed by the Centigrade (C).
TEMP2	The temperature conversion display is done with 10 bit the A/D input value of IF microcomputer. It is displayed by both the Centigrade (C) and 8 bit A/D value. Note: When temperature (C) of the sensor becomes more than a specified temperature, the shutdown start of processing.
FAN1	The value of the FAN rotating state is displayed. STOP: stopped, LOW: slow speed, HIGH: high speed.
FAN2	The value of the rotation state of FAN is displayed. During a rotation of FAN, 8bit D/A value output from IF microcomputer is displayed. It is displayed with OFF during a stop.
B-SENSOR	The value that indicated the degree of brightness input into an Room light sensor is displayed. AD value when the output of the Room light sensor was input into IF microcomputer is displayed.

[1-5] HOUR METER

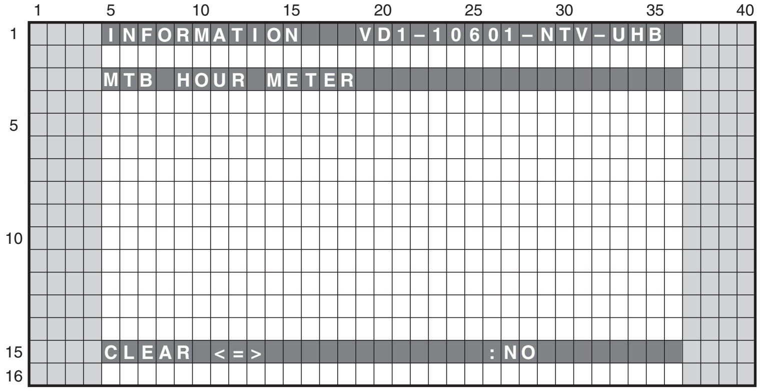


```
INFORMATION    VD1–10601–NTV–UHB

HOUR METER

  PANEL               00151H 21M


PANEL COUNT/SERIAL

  P-COUNT         00000095 TIMES
  SERIAL          ABCDEFGHIJKLMNO
```

Display Item	Meaning	Display Example
PANEL	HOUR METER of the panel	00151H 21M
P-COUNT	Accumulation power ON count of the panel	00000095 TIMES
SERIAL	Serial number of the product	ABCDEFGHIJKLMNO

• MTB HOUR METER

In HOUR METER screen on Factory Menu, press the [ENTER/SET] key, and then it moves to the screen to clear MTB HOUR METER. (MTB HOUR METER is cleared only.)

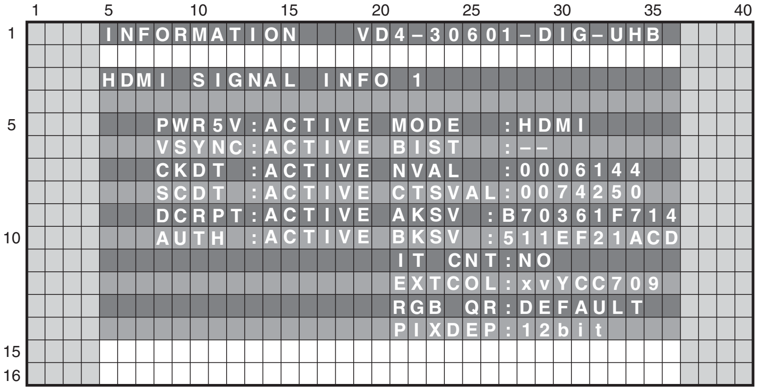


```
INFORMATION    VD1–10601–NTV–UHB

MTB HOUR METER

CLEAR <=>               :NO
```

Operation:

- Even if [⬅] key or [➡] key is pressed, {CLEAR <=> :YES} ⇔ {CLEAR <=> :NO} is repeated.
- Selecting <NO> then pressing the [ENTER/SET] key will return the screen to the next higher layer, without doing anything.
- Selecting <YES> then holding the [ENTER/SET] key pressed for 5 seconds will clear the HOUR METER (HOUR METER while the MAIN NG screen is displaed) data that are managed in MTB then return the screen to the next higher layer.

[1-6] HDMI SIGNAL INFO 1

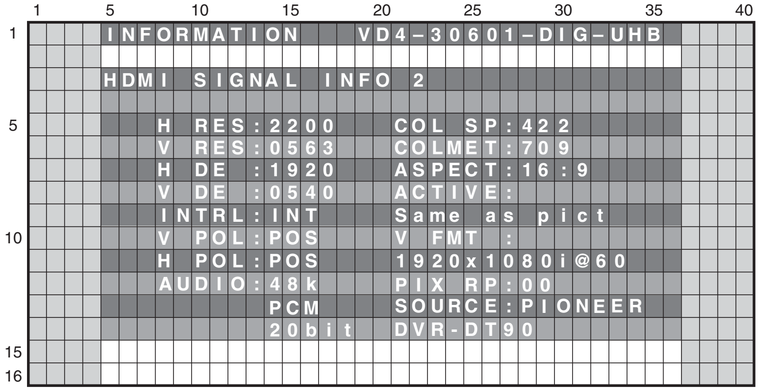


```
INFORMATION   VD4-30601-DIG-UHB

HDMI SIGNAL INFO 1

   PWR5V:ACTIVE MODE  :HDMI
   VSYNC:ACTIVE BIST  :--
   CKDT :ACTIVE NVAL  :0006144
   SCDT :ACTIVE CTSVAL:0074250
   DCRPT:ACTIVE AKSV :B70361F714
   AUTH :ACTIVE BKSV :511EF21ACD
                IT CNT:NO
                EXTCOL:xvYCC709
                RGB QR:DEFAULT
                PIXDEP:12bit
```

Displays the input signal information of HDMI terminal

Display Item	Meaning
PWR5V	+5 V power detection (18 pin of HDMI terminal)
VSYNC	VSYNC detection
CKDT	Clock detection
SCDT	SYNC detection
DCRPT	HDCP decryption status
AUTH	HDCP authentication status
MODE	HDMI mode status
BIST	HDCP Key status (Always display it with "--".)
NVAL	N value
CTSVAL	CTS value
AKSV	Shadow AKSV value
BKSV	Shadow BKSV value
IT CNT	IT content (AVI info)
EXTCOL	Extension colorimetry (AVI info)
RGB QR	RGB range (AVI info)
PIXDEP	Number of pixel/bit

[1-7] HDMI SIGNAL INFO 2



```
INFORMATION   VD4–30601–DIG–UHB

HDMI SIGNAL INFO 2

   H RES:2200   COL SP:422
   V RES:0563   COLMET:709
   H DE :1920   ASPECT:16:9
   V DE :0540   ACTIVE:
   INTRL:INT    Same as pict
   V POL:POS    V FMT  :
   H POL:POS    1920x1080i@60
   AUDIO:48k    PIX RP:00
         PCM    SOURCE:PIONEER
         20bit  DVR-DT90
```

Displays input signal status of HDMI terminal

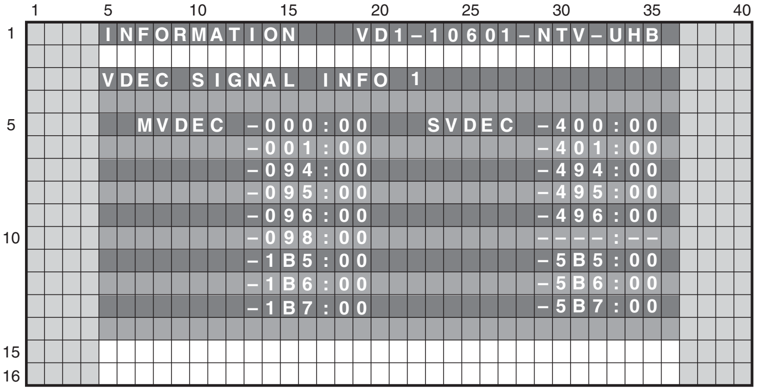
Display Item	Meaning
H RES	Number of horizontal pixels
V RES	Number of vertical lines
H DE	Number of effectively horizontal pixels
V DE	Number of effectively vertical lines
INTRL	Interlace (=INT) or progressive (=PRG)
V POL	VSYNC polarity
H POL	HSYNC polarity
AUDIO (first line)	Sampling frequency. (ex. DVD: 48kHz, CD: 44.1kHz) *1
AUDIO (second line)	Audio format PCM (PCM) or No PCM (no PCM)
AUDIO (third line)	Quantization bit
COL SP	Color space (AVI Info) 422 or 444 or RGB *2
COLMET	Colorimetry (AVI Info)
ASPECT	Aspect (AVI Info)
ACTIVE	Active format (AVI Info)
V FMT	Video format (AVI Info)
PIX RP	Pixel count
SOURCE (first line)	Vendor name of the emission device
SOURCE (second line)	Model name of the emission device

*1: Confirm if this item is displayed when the audio is not outputted.
*2: If may not match to the state of emission devices when the color is abnormal.

Display of HDMI FACTORY and correspondence of resolution
Please confirm the following items when the picture doesn't come out.

Input Signal	FACTORY Display				
	H RES	V RES	H DE	V DE	V FMT
480i (525i)@60	858	262 or 263	720	240	720x480i@60
480p (525p)@60	858	525	720	480	720x480p@60
1080i (1125i)@60	2200	562 or 563	1920	540	1920x1080i@60
720p (750p)@60	1650	750	1280	720	1280x720p@60
1080p (1125p)@60	2200	1125	1920	1080	1920x1080p@60
1080p (1125p)@24	2750	1125	1920	1080	1920x1080p@24

[1-8] VDEC SIGNAL INFO 1

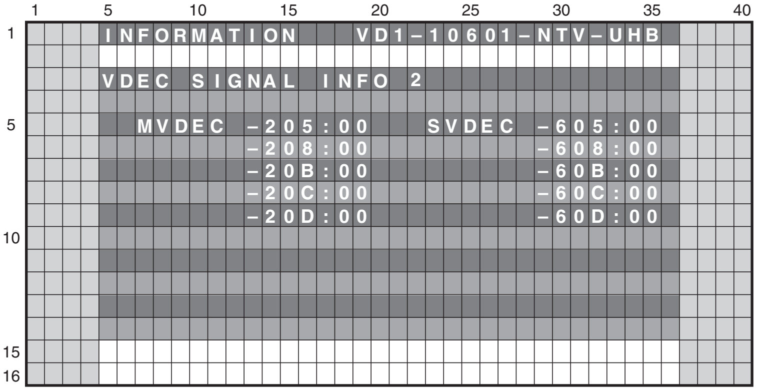


```
INFORMATION    VD1-10601-NTV-UHB

VDEC SIGNAL INFO 1

  MVDEC  -000:00    SVDEC  -400:00
         -001:00           -401:00
         -094:00           -494:00
         -095:00           -495:00
         -096:00           -496:00
         -098:00           ----:--
         -1B5:00           -5B5:00
         -1B6:00           -5B6:00
         -1B7:00           -5B7:00
```

Displays signal status that is input to VDEC.

Device	Sub Address (Main screen)	Sub Address (Sub screen)	Meaning
VDEC	000h	400h	Line system distinction result
	001h	401h	VTR distinction result
	094h	494h	Slot number
	095h	495h	Color system distinction result
	096h	496h	ACC coefficient
	098h	---	3D YC flag
	1B5h	5B5h	MV detection 1
	1B6h	5B6h	MV detection 2
	1B7h	5B7h	MV detection 3

[1-9] VDEC SIGNAL INFO 2



```
INFORMATION    VD1-10601-NTV-UHB

VDEC SIGNAL INFO 2

  MVDEC  -205:00    SVDEC  -605:00
         -208:00           -608:00
         -20B:00           -60B:00
         -20C:00           -60C:00
         -20D:00           -60D:00
```

Displays signal status that is input to VDEC.

Device	Sub Address (Main screen)	Sub Address (Sub screen)	Meaning
VDEC	205h	605h	CC detection 1
	208h	608h	CC detection 2
	20Bh	60Bh	CC-CRI detection
	20Ch	60Ch	XDS content advisory 0
	20Dh	60Dh	XDS content advisory 1

[2] PANEL FACTORY (+)

■ Operation Items

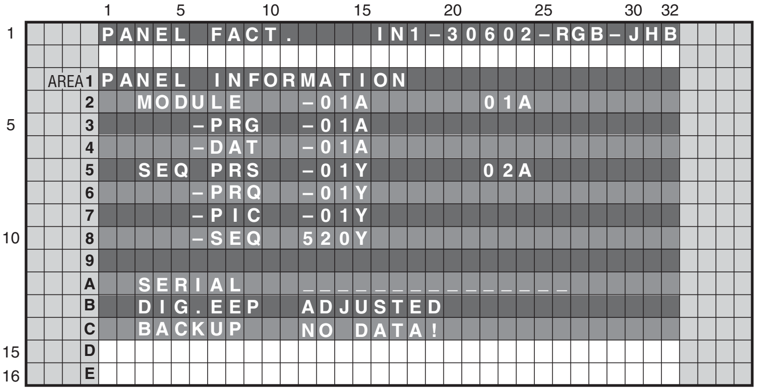
This is the menu screen for the adjustment of the panel. Data acquisition and value adjustment can be performed for the following items:

No.	Indication	Description of functions
[2-1]	PANEL INFORMATION	Data, such as the version of the microcomputer of the panel, product serial number, and statuses of EEPROM for adjustment values for the main unit and for backup, are displayed.
[2-2]	PANEL WORKS	Operation data, such as accumulated pulse-meter count, accumulated hour-meter count, accumulated power-on count, and the temperature detected by the sensor, are displayed.
[2-3]	POWER DOWN	The power-down history is displayed.
[2-4]	SHUT DOWN	The shutdown history of the panel section is displayed.
[2-5]	PANEL-1 ADJ (+)	Settings of the driving voltage and AM radio prevention can be performed.
[2-6]	PANEL-2 ADJ (+)	White balance and ABL (power consumption) for the panel can be set.
[2-7]	PANEL FUNCTION (+)	Setting of the panel-degradation correction-level and various functions are displayed.
[2-8]	ETC. (+)	Copying of backup data, clearing of various settings, and changing of settings for functions for which setting data are not stored upon last update are performed.
[2-9]	RASTER MASK SETUP (+)	The mask indication (RASTER) can be set and indicated.
[2-10]	PATTERN MASK SETUP (+)	The mask indication (PATTERN) can be set and indicated.
[2-11]	COMBI MASK SETUP (+)	The mask indication (COMBI) can be set and indicated.

■ Details of indications in each layer

[2-1] PANEL INFORMATION

- Data, such as the version of the microcomputer of the panel, product serial number, and statuses of digital EEPROM for storing the adjustment values and for backup EEPROM, are displayed. No other layers are nested below this layer, and there are no adjustment items.



```
         PANEL FACT.    IN1-30602-RGB-JHB

AREA 1   PANEL INFORMATION
     2     MODULE   -01A      01A
     3        -PRG  -01A
     4        -DAT  -01A
     5     SEQ PRS  -01Y      02A
     6        -PRQ  -01Y
     7        -PIC  -01Y
     8        -SEQ  520Y
     9
     A     SERIAL   _______________
     B     DIG.EEP  ADJUSTED
     C     BACKUP   NO DATA!
     D
     E
```

■ Key operation

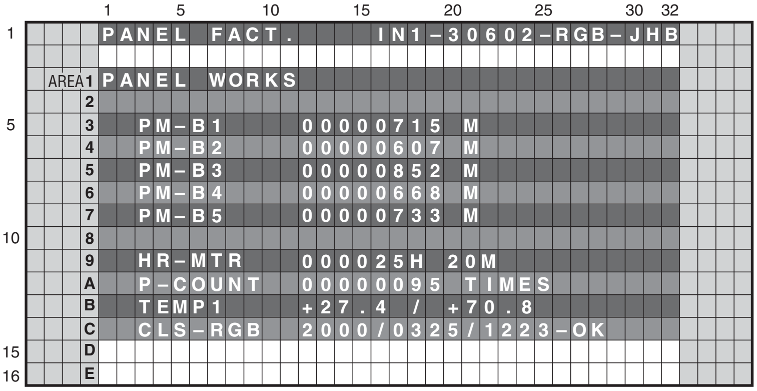
<DOWN>	: Shifting to PANEL WORKS
<UP>	: Shifting to COMBI MASK SETUP (+)
<L/R>	: Updating displayed information

■ Contents of the Display item

MODULE	: The version of data written in the Module microcomputer is indicated.
-PRG	: The program version of the Module microcomputer is indicated.
-DAT	: The data version of the Module microcomputer is indicated.
SEQ PRS	: The version of data written in the Sequence LSI is indicated.
-PRG	: The program version of the Sequence LSI is indicated.
-PIC	: The Picture-data version of the Sequence LSI is indicated.
-SEQ	: The sequence-data version of the Sequence LSI is indicated.
SERIAL	: The serial number of the module is indicated.
DIG.EEP	: The adjusted status of the EEPROM that is mounted on the DIGITAL Assy is indicated.
BACKUP	: The adjusted status of the EEPROM for backup that is mounted on the SENSOR Assy is indicated.

[2-2] PANEL WORKS

- Data on operations, such as the accumulated pulse-meter counts, hour-meter count, power-on count, and temperature detected by the sensor, are displayed. No other layers are nested below this layer, and there are no adjustment items.



```
         PANEL FACT.    IN1-30602-RGB-JHB

AREA 1   PANEL WORKS
     2
     3     PM-B1    00000715 M
     4     PM-B2    00000607 M
     5     PM-B3    00000852 M
     6     PM-B4    00000668 M
     7     PM-B5    00000733 M
     8
     9     HR-MTR   000025H 20M
     A     P-COUNT  00000095 TIMES
     B     TEMP1    +27.4 / +70.8
     C     CLS-RGB  2000/0325/1223-OK
     D
     E
```

Temperature unit is " °C (Centigrade) ".

■ Key operation

<DOWN>	: Shifting to POWER DOWN
<UP>	: Shifting to PANEL INFORMATION
<L/R>	: Updating displayed information

■ Contents of the Display item

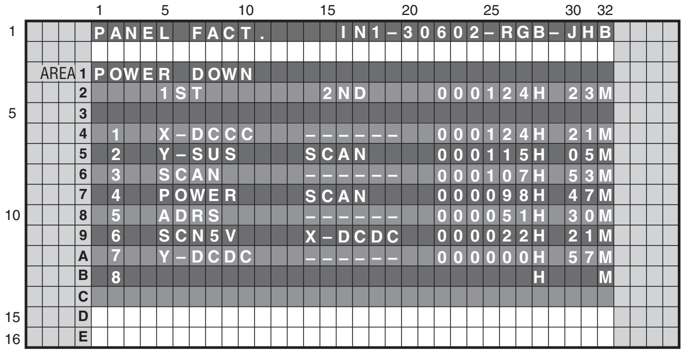
- PM-B1 to B5: The accumulated pulse-meter counts for the 5 blocks on the screen are indicated. (the lowest-order digit represents millions of pulses.)
- HR-MTR: The hour-meter value (accumulated power-on hours) is indicated.
- P-COUNT: The accumulated power-on count is indicated.
- TEMP1: The current panel temperature and the historical maximum temperature recorded in memory are indicated. The range of temperature indication is from -50.0 to +99.9. (The temperature unit is " °C (Centigrade) ".)
- CLS-RGB: Data obtained from the color sensor are displayed in the order R, G, and B, with the status indication at the end.

CLS Status	OSD Indication
Function OFF	-OFF
Color sensor module non connection	-NC
Data abnormality	-INV
Data normal	-OK

Note:
Turning ON the functions of the color sensor can be performed in the ETC(+) layer.

[2-3] POWER DOWN

- The power-down history is displayed. No other layers are nested below this layer.



```
PANEL FACT.    IN1-30602-RGB-JHB

POWER DOWN
    1ST       2ND    000124H 23M

 1  X-DCCC   ------  000124H 21M
 2  Y-SUS    SCAN    000115H 05M
 3  SCAN     ------  000107H 53M
 4  POWER    SCAN    000098H 47M
 5  ADRS     ------  000051H 30M
 6  SCN5V    X-DCDC  000022H 21M
 7  Y-DCDC   ------  000000H 57M
 8                         H   M
```

■ Key operation

<DOWN> : Shifting to SHUT DOWN
<UP> : Shifting to PANEL WORKS
<L/R> : Updating displayed information

■ Contents of the Display item

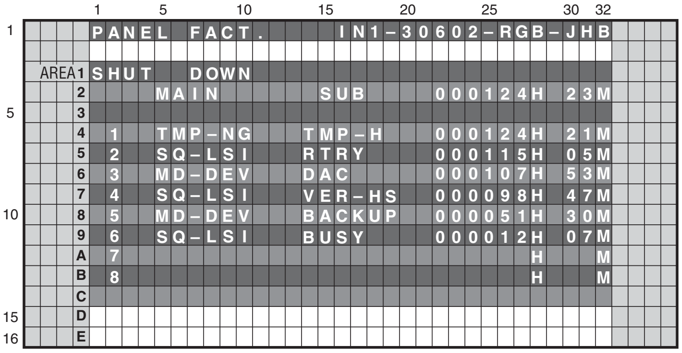
- The last most 8 power-down histories are displayed with the hour-meter values that indicate the hours when power-downs occurred.
- When power-down is confirmed, the factor is displayed as "1st", "2nd", according to the accuracy order.
- The power-down history is not recorded when the power-down occurred at the same place and same time.

<Causes of power-down and corresponding OSD indications>

Cause of power-down	OSD Indication	Cause of power-down	OSD Indication
POWER SUPPLY Unit	P-PWR	ADDRESS Assy	ADRS
SCAN Assy	SCAN	DC/DC converter for X drive	X-DCDC
5 V power for SCAN	SCN5V	X-SUS	X-SUS
DC/DC converter for Y drive	Y-DCDC	DIG-DCDC	D-DCDC
Y-SUS	Y-SUS	Unknown	UNKNOW

[2-4] SHUT DOWN

- The shutdown history of panel section is displayed. No other layers are nested below this layer, and there are no adjustment items.



```
PANEL FACT.    IN1-30602-RGB-JHB

SHUT  DOWN
    MAIN      SUB    000124H 23M

 1  TMP-NG   TMP-H   000124H 21M
 2  SQ-LSI   RTRY    000115H 05M
 3  MD-DEV   DAC     000107H 53M
 4  SQ-LSI   VER-HS  000098H 47M
 5  MD-DEV   BACKUP  000051H 30M
 6  SQ-LSI   BUSY    000012H 07M
 7                         H   M
 8                         H   M
```

■ Key operation

<DOWN>	: Shifting to PANEL-1 ADJ (+)
<UP>	: Shifting to POWER DOWN
<L/R>	: Updating displayed information

■ Contents of the Display item

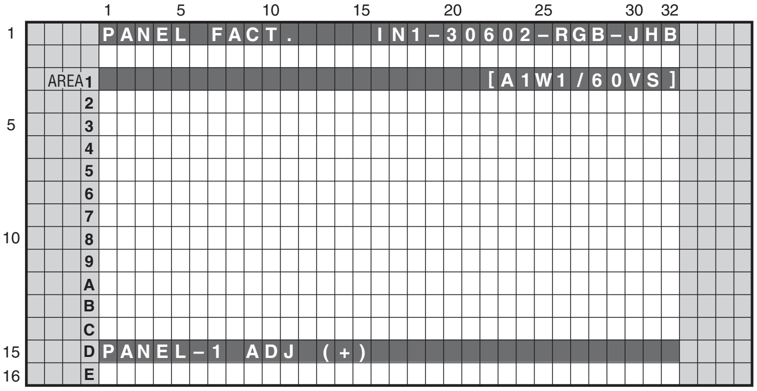
- The shutdown history is displayed. The last most 8 shutdown histories are displayed with the hour-meter values that indicate the hours when shutdowns occurred.
- When there is detail information when shutdown occurred, the possible defective part is displayed as Sub information.
- The shutdown history is not recorded when the shutdown occurred at the same place and same time.

<Cause of shutdown and corresponding OSD Indication >

Cause of shutdown (MAIN)		Cause of shutdown (SUB)	
Main cause	**OSD Indication**	**Sub cause**	**OSD Indication**
SQ_LSI	SQ_LSI	Communication Error	RTRY
		Drive Stop	SQNO
		Busy	BUSY
		Version mismatching (H/S)	VER-HS
		Version mismatching (H/M)	VER-HM
		Version mismatching (H/I)	VER-HI
MDU-DEVICE	MD-DEV	Digital EEPROM	EEPROM
		Backup EEPROM	BACKUP
		DAC IC	DAC
Abnormally in RST2 power supply	RST2	–	–
Abnormally in panel temperature	TMP-NG	High temperature of the panel	TMP-H
		Low temperature of the panel	TMP-L

[2-5] PANEL-1 ADJ (+)

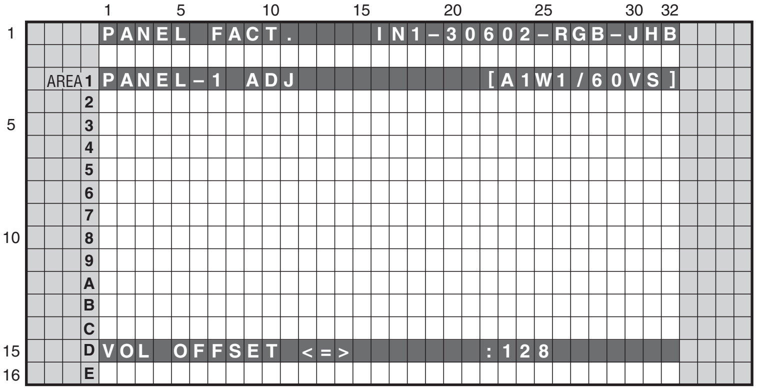
This is a page for settings for the driving voltage and AM radio countermeasures. Pressing the ENTER/SET key shifts the screen to the next nested layer below for item selection.
On third line of the screen, the white balance, ABL table, and drive sequence in the current status are displayed.
(Items that have lower layers are the same.)



```
PANEL FACT.     IN1-30602-RGB-JHB
                      [A1W1/60VS]
PANEL-1 ADJ (+)
```

■ Key operation

<DOWN> : Shifting to PANEL-2 ADJ (+)
<UP> : Shifting to POWER DOWN
<SET> : Shifting to the next nested layer



```
PANEL FACT.     IN1-30602-RGB-JHB
PANEL-1 ADJ           [A1W1/60VS]
VOL OFFSET <=>        :128
```

■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<VOL+> : Adding by 10 to the adjustment/setting value
<VOL-> : Subtracting by 10 from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

When entered to this layer, panel white balance and the gamma setting become the default temporarily for setting that is necessary for voltage adjustment. Turn off the noise option function.

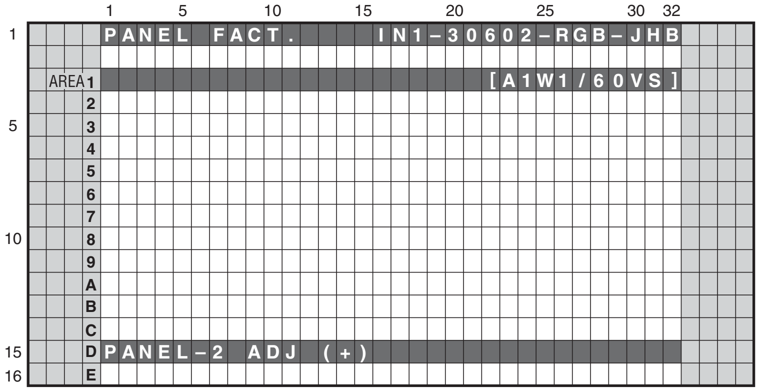
<Next nested layer of PANEL-1 ADJ (+)>

No.	Item	OSD Indication	Variable Range	Setting Value	RS-232C Command	Remarks
1	Vsus voltage	VOL SUS <=>	000 to 255	Factory adjustment value	VSU	
2	Vysnofs voltage	VOL OFFSET <=>			VOF	
3	Vyprst voltage	VOL RST P <=>			VRP	
4	Vxpofs1 voltage	VOL XPOFS1 <=>			VX1	
5	Vxpofs2 voltage	VOL XPOFS2 <=>			VX2	
6	Vyknofs1,2 voltage	VOL YKNOFS1 D <=>			V1F	
7	Vyknofs3 voltage	VOL YKNOFS3 D <=>			V3F	
8	Vyknofs4 voltage	VOL YKNOFS4 D<=>			V4F	
9	Δ Vyknofs1,2/3/4	VOL YKNOFSA D<=>			VYF	
10	First reset (wedge width)	RESET1ST_KSB <=>	112 to 144	128	R1K	Factory use item
11	Second reset (wedge width)	RESET2ND_KSB <=>			R2K	
12	1SF - Y sus tail (wedge width)	YSTL_1SF_KSB <=>			Y1K	
13	1SF - Y sus tail (resonance down width)	YSTL_1SF_HZ <=>			Y1Z	
14	3SF and later - first X sus (resonance up width)	XSUS_1ST_B <=>			X1B	
15	2SF - second Y sus (resonance up width)	YSUS_2ND_B <=>			Y2B	
16	2SF - third X sus (resonance up width)	XSUS_3RD_B <=>			X3B	
17	2SF - repeat Y sus (resonance up width)	YSUS_B <=>			YSB	
18	2SF - repeat X sus (resonance up width)	XSUS_B <=>			XSB	
19	3SF and later - Y sus tail (wedge width)	YSTL_KSB <=>			YTK	
20	3SF and later - Y sus tail (resonance down width)	YSTL_HZ <=>			YTZ	
21	2SF - Y sus tail (wedge width)	YSTL_2SF_KSB <=>			Y2K	
22	2SF - Y sus tail (resonance down width)	YSTL_2SF_HZ <=>			Y2Z	
23	3SF and later (2 pulses of SSF) - Y sus tail (wedge width)	YSTL_FMR_KSB <=>			YNK	
24	Timing between Scan and Address	SCAN ADRS ADJ <=>			SAT	
25	SUS frequency (AM radio anti-jamming)	SUS FREQ <=>	MODE1 to 8	MODE1	SFR	Note

Note: It is necessary to turn OFF and ON the power for reflecting the setting change.

[2-6] PANEL-2 ADJ (+)

- White balance of the panel can be adjusted. Pressing the ENTER/SET key shifts the screen to the next nested layer below for item selection.



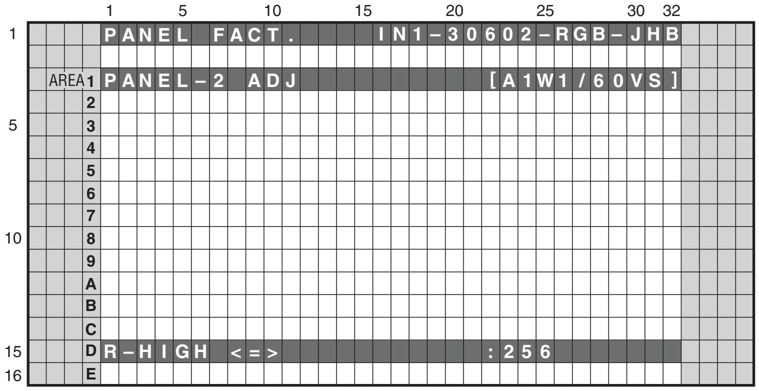
PANEL FACT. IN1-30602-RGB-JHB

[A1W1/60VS]

PANEL-2 ADJ (+)

■ Key operation

<DOWN> : Shifting to PANEL FUNCTION (+)
<UP> : Shifting to PANEL-1 ADJ (+)
<SET> : Shifting to the next nested layer



PANEL FACT. IN1-30602-RGB-JHB

PANEL-2 ADJ [A1W1/60VS]

R-HIGH <=> :256

■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<VOL+> : Adding by 10 to the adjustment/setting value
<VOL-> : Subtracting by 10 from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

<Next nested layer of PANEL-2 ADJ (+)>

No.	Item	OSD Indication	Variable Range	Setting Value	RS-232C COMMAND	Remarks
1	Panel WB R highlight	R-HIGH <=>	000 to 999	Factory adjustment value	PRH	
2	Panel WB G highlight	G-HIGH <=>			PGH	
3	Panel WB B highlight	B-HIGH <=>			PBH	
4	Panel WB R lowlight	R-LOW <=>	000 to 999		PRL	
5	Panel WB G lowlight	G-LOW <=>			PGL	
6	Panel WB B lowlight	B-LOW <=>			PBL	
7	ABL	ABL <=>	000 to 255		ABL	

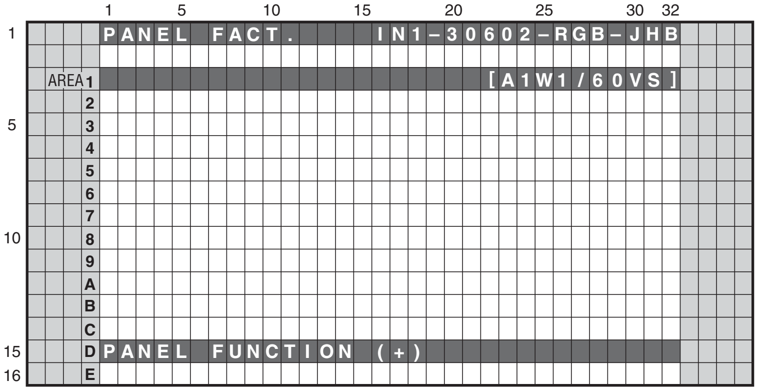
The ABL/WB adjustment values are grouped into three tables with ABL and four tables with WB, depending on the drive sequences. The adjustment value for the actually driven table is displayed. The number of the adjustment table and the drive sequence currently selected are displayed on the right side of the third line as the On-Screen display.

<ABL/WB adjustment table and Drive sequence>

ABL Table	WB Table	OSD Indication	Drive Sequence	OSD Indication	Remarks
TABLE 1	TABLE 1	A1W1	VIDEO-60Hz	60VS	
			PC-60Hz	60PS	
TABLE 2	TABLE 2	A2W2	VIDEO-48Hz	48VS	
			VIDEO-50Hz	50VS	
TABLE 3	TABLE 3	A3W3	VIDEO-72Hz	72VS	
			VIDEO-75Hz-1	75V1	
	TABLE 4	A3W4	VIDEO-75Hz-2	75V2	Correspond to MASK indication only

[2-7] PANEL FUNCTION (+)

- A level setting for panel degradation correction can be made. Pressing the ENTER/SET key shifts the screen to the next nested layer below for item selection.



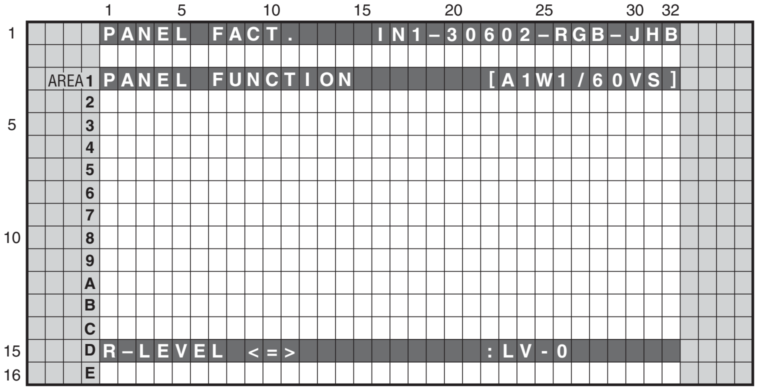
PANEL FACT. IN1-30602-RGB-JHB

[A1W1/60VS]

PANEL FUNCTION (+)

■ Key operation

<DOWN> : Shifting to ETC.(+)
<UP> : Shifting to PANEL-2 ADJ (+)
<SET> : Shifting to the next nested layer



PANEL FACT. IN1-30602-RGB-JHB

PANEL FUNCTION [A1W1/60VS]

R-LEVEL <=> :LV-0

■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

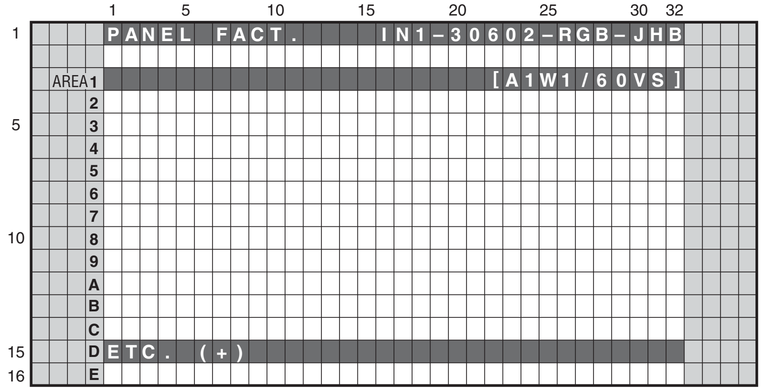
<Next nested layer of PANEL FUNCTION (+)>

No.	Item	OSD Indication	Variable Range	Setting Value	RS-232C COMMAND	Remarks
1	R deterioration correction LEVEL	R-LEVEL <=>	Lv-10 to 7	Lv-3	RRL	Factory use item (Note)
2	G deterioration correction LEVEL	G-LEVEL <=>		Lv-2	RGL	
3	B deterioration correction LEVEL	B-LEVEL <=>		Lv-0	RBL	
4	L1 address	ADDRESS L1 <=>	PH0 to 9	PH1	AP0	
5	L2 address	ADDRESS L2 <=>		PH3	AP0	
6	L3 address	ADDRESS L3 <=>		PH1	AP1	
7	L4 address	ADDRESS L4 <=>		PH3	AP1	
8	U1 address	ADDRESS U1 <=>		PH1	AP2	
9	U2 address	ADDRESS U2 <=>		PH3	AP2	
10	U3 address	ADDRESS U3 <=>		PH1	AP3	
11	U4 address	ADDRESS U4 <=>		PH3	AP3	
12	Streaking correction	STK MODE <=>	OFF to MODE1 to 8	MODE1	SKM	
13	Black display mode	FULL BLACK <=>	OFF to MODE1	MODE1	FBM	
14	Panel Rx characteristic	PANEL RX <=>	000 to 999	Factory adjustment value	PRX	Factory use item
15	Panel Ry characteristic	PANEL RY <=>	000 to 999		PRY	
16	Panel Gx characteristic	PANEL GX <=>	000 to 999		PGX	
17	Panel Gy characteristic	PANEL GY <=>	000 to 999		PGY	
18	Panel Bx characteristic	PANEL BX <=>	000 to 999		PBX	
19	Panel By characteristic	PANEL BY <=>	000 to 999		PBY	
20	Color sensor R coefficient	CLS R <=>	000 to 255	128	CSR	
21	Color sensor G coefficient	CLS G <=>	000 to 255	128	CSG	
22	Color sensor B coefficient	CLS B <=>	000 to 255	128	CSB	

Note: It is necessary to turn OFF and ON the power for reflecting the setting change.

[2-8] ETC. (+)

- Clearance of various log data for the panel and changing of settings for which setting data were not stored upon last update can be performed.
  Pressing the ENTER/SET key shifts the screen to the next nested layer below for item selection.



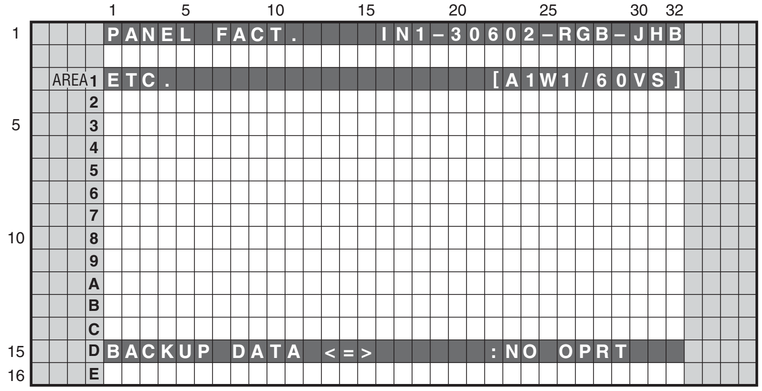
PANEL FACT. IN1-30602-RGB-JHB

AREA 1 [A1W1/60VS]

D ETC. (+)

■ Key operation

<DOWN> : Shifting to RASTER MASK SETUP (+)
<UP> : Shifting to PANEL FUNCTION (+)
<SET> : Shifting to the next nested layer



PANEL FACT. IN1-30602-RGB-JHB

AREA 1 ETC. [A1W1/60VS]

D BACKUP DATA <=> :NO OPRT

■ Key operation

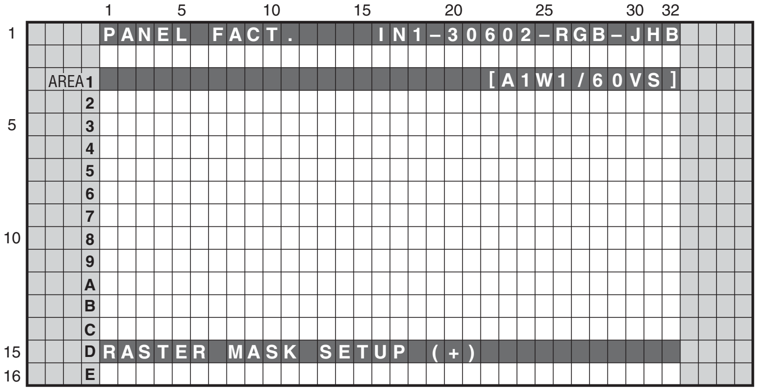
<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

<Next nested layer of ETC (+)>

No.	Item	OSD Indication	Processing Contents	RS-232C COMMAND	Remarks
1	Backup EEPROM data	BACKUP DATA <=>	• NO OPRT (No operation) • TRANSFER (Backup data transmission)	BCP	
2	Digital EEPROM data	DIGITAL EEPROM <=>	• NO OPRT (No operation) • REPAIR (Adjustment is complete) • DELETE (Adjustment is not complete)	FAJ/UAJ	
3	PD history	PD INFO. <=>	• NO OPRT (No operation) • CLEAR (Data clear)	CPD	
4	SD history	SD INFO. <=>		CSD	
5	HOUR METER	HR-MTR INFO. <=>		CHM	
6	Pulse meter	PM/B1-B5 <=>		CPM	
7	PON counter	P COUNT INFO. <=>		CPC	
8	Maximum temperature	MAX TEMP. <=>		CMT	
9	Mirror reversing display	MIRROR <=>	• Mirror reversing display OFF • MODE1 (Right and left reversing) • MODE2 (Top and bottom reversing) • MODE3 (Right and left, Top and bottom reversing)	MIR	The indication on the menu is also highlighted. The setting is canceled upon power-off.
10	Color sensor mode	CLS <=>	• Color sensor operation OFF • Color sensor operation ON	CSF	

[2-9] RASTER MASK SETUP (+)

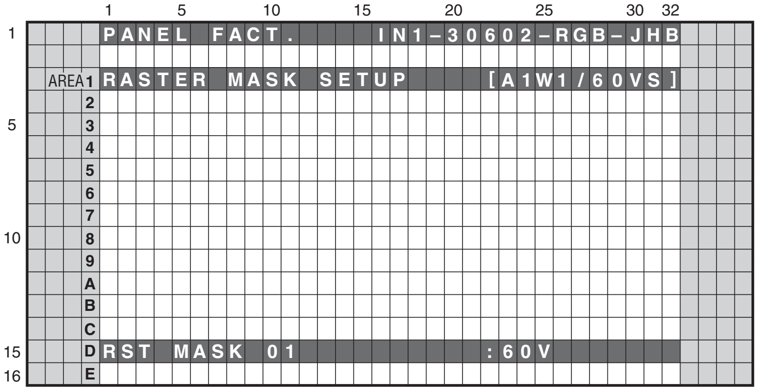
- This menu set the RASTER MASK and the drive sequence at RASTER MASK state. Pressing the ENTER/SET key shifts the screen to the next nested layer below for item selection.



```
PANEL FACT.        IN1-30602-RGB-JHB

AREA 1                   [A1W1/60VS]
...
D RASTER MASK SETUP (+)
E
```

■ Key operation

<DOWN> : Shifting to PATTERN MASK SETUP (+)
<UP> : Shifting to ETC. (+)
<SET> : Shifting to the next nested layer



```
PANEL FACT.        IN1-30602-RGB-JHB

AREA 1 RASTER MASK SETUP [A1W1/60VS]
...
D RST MASK 01           :60V
E
```

■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the adjustment/setting value and shifting to the upper layer

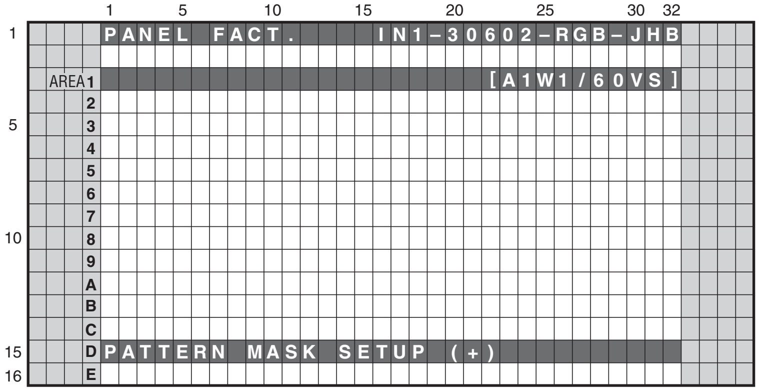
- The changed sequence and the ABL/WB table are retained until the mask is turned off.

<Next nested layer of RASTER MASK SETUP (+)>

No.	Item	OSD Indication	MASK Display Sequence	RS-232C COMMAND	Remarks
1	Mask off	MASK OFF		MKR/VFQ	
2	Display raster mask 01	RST MASK 01 <=>	<=>50V<=>60V<=>60P<=> 72V<=>75V1<=>75V2<=>		
...		...			
26	Display raster mask 25	RST MASK 25 <=>			

[2-10] PATTERN MASK SETUP (+)

- This menu set the PATTERN MASK and the drive sequence at PATTERN MASK state. Pressing the ENTER/SET key shifts the screen to the next nested layer below for item selection.



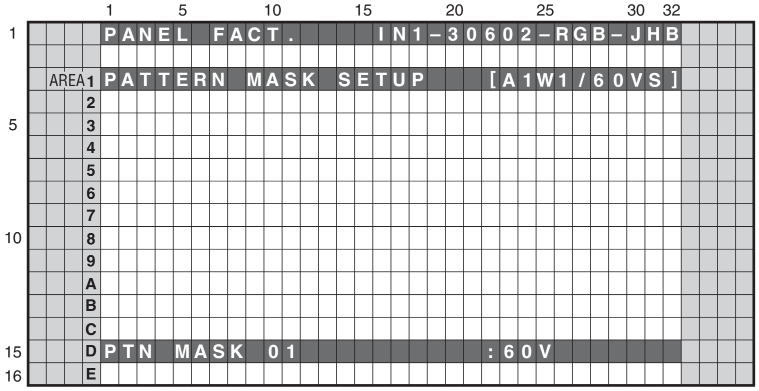
PANEL FACT. IN1-30602-RGB-JHB

[A1W1/60VS]

PATTERN MASK SETUP (+)

■ Key operation

<DOWN> : Shifting to COMBI MASK SETUP (+)
<UP> : Shifting to RASTER MASK SETUP (+)
<SET> : Shifting to the next nested layer



PANEL FACT. IN1-30602-RGB-JHB

PATTERN MASK SETUP [A1W1/60VS]

PTN MASK 01 :60V

■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the adjustment/setting value and shifting to the upper layer

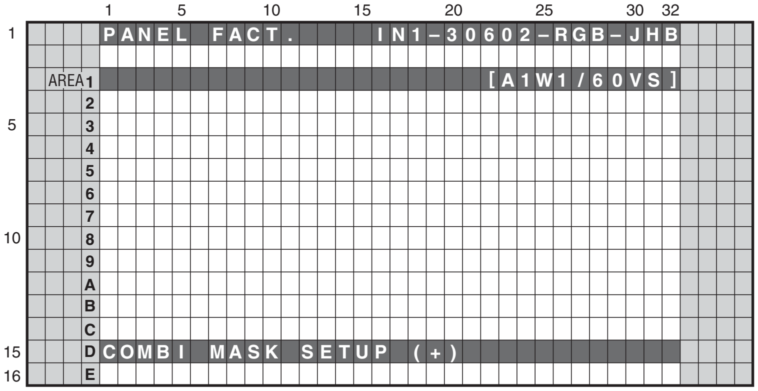
- The changed sequence and the ABL/WB table are retained until the mask is turned off.

<Next nested layer of PATTERN MASK SETUP (+)>

No.	Item	OSD Indication	MASK Display Sequence	RS-232C COMMAND	Remarks
1	Mask off	MASK OFF		MKS/VFQ	
2	Display raster mask 01	PTN MASK 01 <=>	<=>50V<=>60V<=>60P<=> 72V<=>75V1<=>75V2<=>		
...		...			
50	Display raster mask 49	PTN MASK 49 <=>			

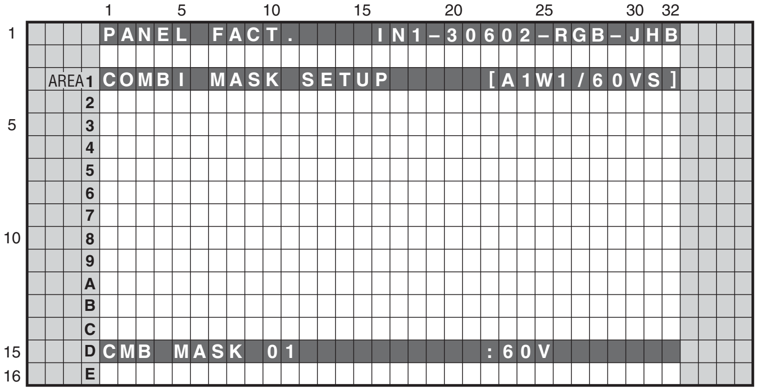
[2-11] COMBI MASK SETUP (+)

- This menu set the COMBI MASK and the drive sequence at COMBI MASK state. Pressing the ENTER/SET key shifts the screen to the next nested layer below for item selection.


1 5 10 15 20 25 30 32
1 5 10 15 16
AREA 1 2 3 4 5 6 7 8 9 A B C D E
PANEL FACT. IN1-30602-RGB-JHB
[A1W1/60VS]
COMBI MASK SETUP (+)

■ Key operation

<DOWN> : Shifting to PANEL INFORMATION
<UP> : Shifting to PATTERN MASK SETUP (+)
<SET> : Shifting to the next nested layer


1 5 10 15 20 25 30 32
1 5 10 15 16
AREA 1 2 3 4 5 6 7 8 9 A B C D E
PANEL FACT. IN1-30602-RGB-JHB
COMBI MASK SETUP [A1W1/60VS]
CMB MASK 01 :60V

■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the adjustment/setting value and shifting to the upper layer

- The changed sequence and the ABL/WB table are retained until the mask is turned off.

<Next nested layer of COMBI MASK SETUP (+)>

No.	Item	OSD Indication	MASK Display Sequence	RS-232C COMMAND	Remarks
1	Mask off	MASK OFF		MKC/VFQ	
2	Display raster mask 01	CMB MASK 01 <=>	<=>50V<=>60V<=>60P<=> 72V<=>75V1<=>75V2<=>		
...		...			
18	Display raster mask 17	CMB MASK 17 <=>			

[3] OPTION

Operation item

No.	Function	Content	RS-232C
[3-1]	CH PRESET <=>	Set the channel map for production line	SCP
[3-2]	SYNC DET (+)	Set the synchronized signal detection of VDEC	–––
[3-3]	CTI (+)	Set the synchronized signal detection of VDEC	–––

[3-1] CH PRESET <=>

Exclusively used for production line.

[3-2] SYNC DET (+)

Exclusively used for technical analysis (details omitted).

[3-3] CTI (+)

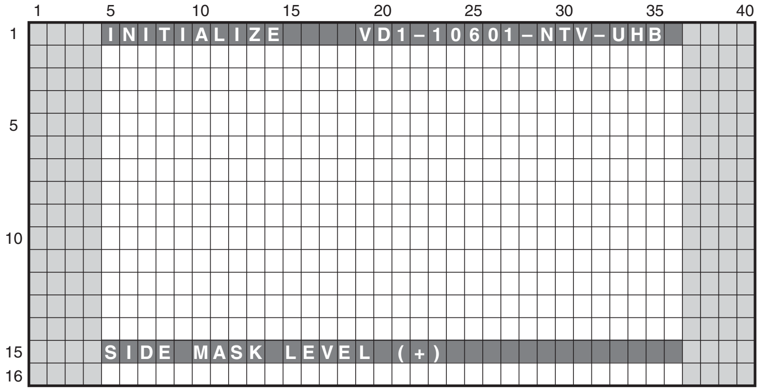
Exclusively used for technical analysis (details omitted).

[4] INITIALIZE

Operation item

No.	Function	Content	RS-232C
[4-1]	SIDE MASK LEVEL (+)	Configure the color of the side mask.	SML
[4-2]	FINAL SETUP	Initialize flash memorys on virgin product status	FST
[4-3]	DTB SERVICE MODE	Enter the Digital Tuner Service Menu	–––
[4-4]	Wide XGA AUTO <=>	Exclusively used for technical analsyis.	–––
[4-5]	AUTO ADJUST. <=>	Perform the auto-adjustment setting process	–––

[4-1] SIDE MASK LEVEL (+)



INITIALIZE VD1–10601–NTV–UHB

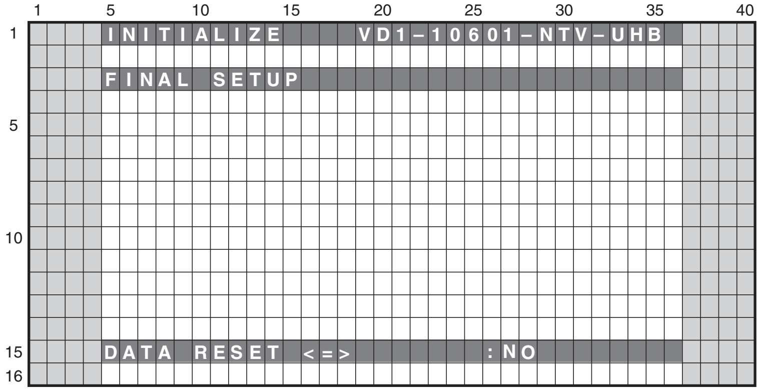
SIDE MASK LEVEL (+)

To configure sidemask level (To adjust the values, input signal is required).

Display Item	Content	RS-232C
SIDE MASK LEVEL <=>	Adjust Side Mask level (Adjustable range: 000 to 255, Initial value: 115)	SML

Note: In this mode (SIDE MASK LEVEL), adjustment value cannot changed with the VOLUME +/- keys.

[4-2] FINAL SETUP



INITIALIZE VD1–10601–NTV–UHB

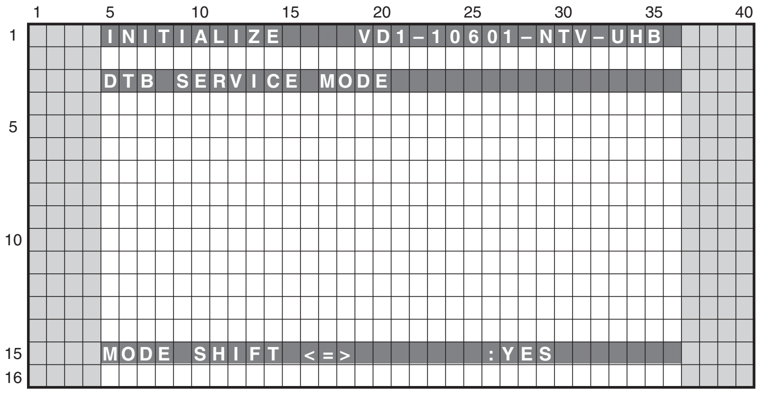
FINAL SETUP

DATA RESET <=> :NO

- To reset each memory values to factory default values. Factory command is "FST".
- When the configuration is set to <NO> and the [ENTER/SET] key is pressed, no action is taken and the menu returns to previous screen.
- When the configuration is set to <YES> and the [ENTER/SET] key is pressed for 5 seconds, the reset action executes.

Be sure to disconnect and connect the AC cable after FINAL SETUP.
When replacing the MAIN Assy, the FINAL SETUP is required.

[4-3] DTB SERVICE MODE



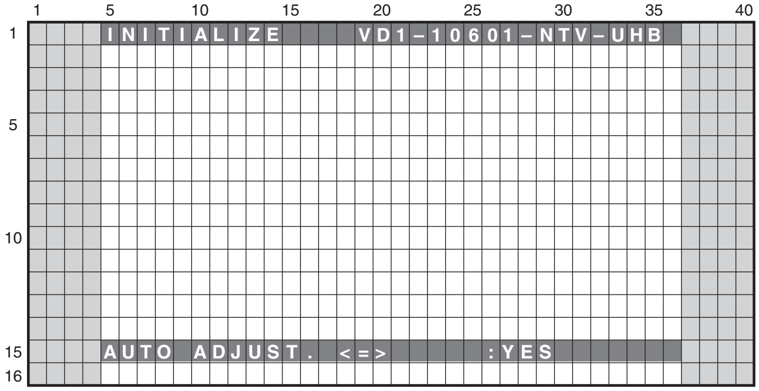
```
INITIALIZE     VD1–10601–NTV–UHB

DTB SERVICE MODE

MODE SHIFT <=>        :YES
```

If the [ENTER/SET] key is kept on pressing for 5 second when the status of this menu is <YES>, shift to the DTB SERVICE mode screen. (Release from the SERVICE FACTORY mode.)

[4-4] WIDE XGA AUTO <=>

Exclusively used for technical analysis (details omitted).

[4-5] AUTO ADJUST. <=>



```
INITIALIZE     VD1–10601–NTV–UHB

AUTO ADJUST. <=>      :YES
```

- When the configuration is set to <NO> and the [ENTER/SET] key is pressed, no action is taken and the menu returns to previous screen.
- When the configuration is set to <YES> and the [ENTER/SET] key is pressed for 5 seconds, the auto-adjustment action executes.

- **Be sure to power off with the remote control unit or disconnect and connect the AC cable after the auto-adjustment is completed.**
- **When replacing the IO_AUDIO Assy or MAIN Assy, the auto-adjustment is required.**
- **When this unit is used with the HD AV Converter, the interlocking setting with the HD AV Converter is released. Reset it after the auto adjustment is completed.**

6.3 DIGITAL TUNER SERVICE MENU

The Digital Tuner Service Menu is provided for collecting data for technological examination when the Digital Tuner has any problem in the market. This menu is introduced here just for reference.

[1] REMOTE CONTROL CODE IN DIGITAL TUNER SERVICE MENU

The following remote control cord is valid in the Digital Tuner Service Menu.

Remote Control Keys	Basic Functions	Remarks
⬇ (DOWN)	Selecting the menu items and shifting the pages.	Shifting downward to the next item. Moving to the next lower page.
⬆ (UP)		Shifting upward to the next item. Moving to the next upper page.
⬅ (LEFT)	Selecting the setting value.	Modifying the setting of selected items.
➡ (RIGHT)		
ENTER/SET	Shifting the menu layers	Shifting to the next menu screen.
RETURN		Shifting to the previous menu screen.
Numeric Keys	Numeric input	Input the numerical value.
POWER OFF	Power OFF	Turning the power off.
STANDBY/ON		
FACTORY	Factory ON/OFF	Release the Menu, then enter the Service Factory menu.
EXIT	MENU exit	After you exit the menu, the channel that was selected on the menu will be displayed.
MUTING	Muting	
HOME MENU	HOME MENU ON/OFF	

[2] HIERARCHICAL TABLE OF DIGITAL TUNER SERVICE MENU

Item	Large Item	Middle Item	Remarks
6.3 [3] Digital Tuner Service Menu			
	6.3 [4] HMG Service Menu (*1)		
			Exclusively used for technical analysis: HomeMediaGallery-related information indication
	6.3 [5] Digital		
		Bandwidth	Exclusively used for technical analysis
		Frequency	Exclusively used for technical analysis
		Program Number	Exclusively used for technical analysis
		Audio PID	Exclusively used for technical analysis
		DTV Tuning Status	Exclusively used for technical analysis: Terrestrial digital broadcasting-related information indication
	6.3 [6] Software Version		
			Exclusively used for technical analysis: The software revision information that consists of it in DTB software

***1**: The item is displayed in the derivative model, but the shift to the menu is not possible.

[3] DIGITAL TUNER SERVICE MENU SCREEN

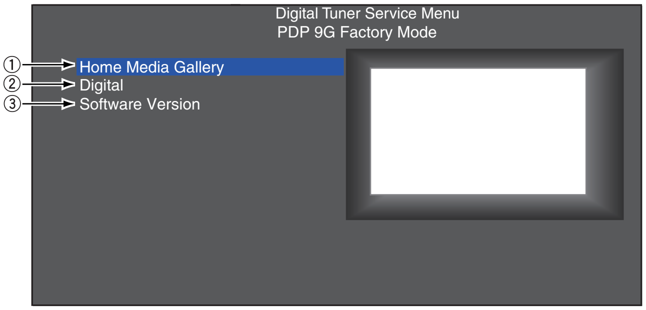
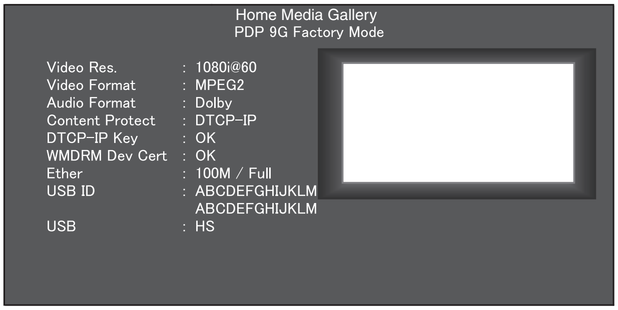

Digital Tuner Service Menu
PDP 9G Factory Mode
①
②
③
Home Media Gallery
Digital
Software Version

Fig.1 Digital Tuner Service Menu screen

Display a large item list of Digital Tuner Service Menu.
Select each item, and shift to each setting / information display screen.

① Home Media Gallary-related information indication
② Terrestrial digital-related setting / information indication
③ Digital Tuner-related detailed software version indication

[4] HOME MEDIA GALLERY SCREEN


Home Media Gallery
PDP 9G Factory Mode

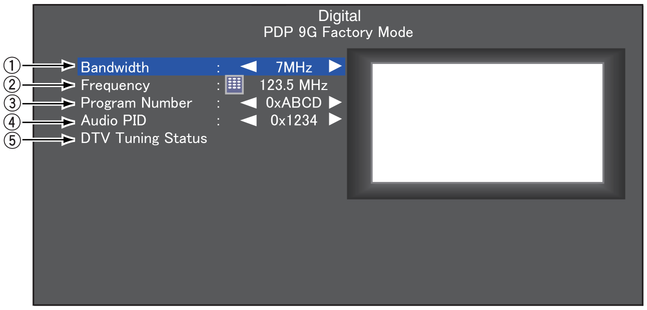
Video Res. : 1080i@60
Video Format : MPEG2
Audio Format : Dolby
Content Protect : DTCP-IP
DTCP-IP Key : OK
WMDRM Dev Cert : OK
Ether : 100M / Full
USB ID : ABCDEFGHIJKLM
ABCDEFGHIJKLM
USB : HS

Fig.2 Home Media Gallery screen

Display the Home Media Gallary-related information.

Note: Derivative model can not shift to this screen.

[5] DIGITAL SCREEN


Digital
PDP 9G Factory Mode
①
②
③
④
⑤

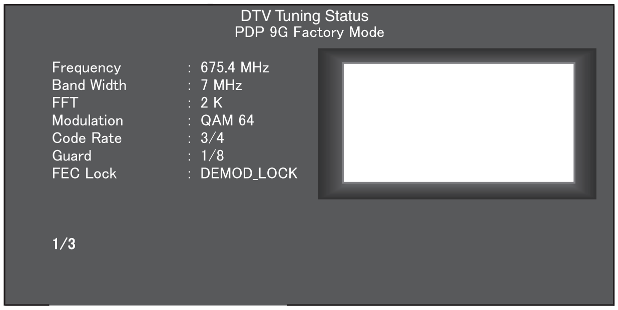
Bandwidth : ◀ 7MHz ▶
Frequency : 123.5 MHz
Program Number : ◀ 0xABCD ▶
Audio PID : ◀ 0x1234 ▶
DTV Tuning Status

Fig.3 Digital screen

Display the Digital broadcasting-related setting / information indication.(except the satellite digital)

① The Bandwidth for receiving a digital broadcast can be selected. (7 MHz / 8 MHz)
② The frequency can be set (up to 1 digit after the decimal point).
③ Program Number in the same stream: Service ID can be selected.
④ Audio PID in the same stream: Audio PID can be selected.
⑤ The DTV Tuning Status is displayed.

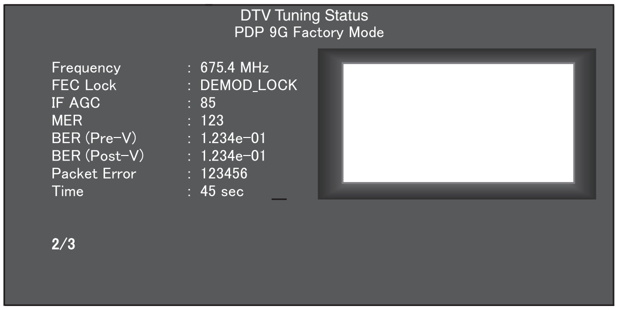
The data displayed on the DTV Tuning Status screen are as shown below:
The instructions for servicing using this screen is shown in "Details on how to confirm the factory DTV tuning status" of section 5.2 [6].
Therefore, this screen is introduced here just for reference.


DTV Tuning Status
PDP 9G Factory Mode

Frequency : 675.4 MHz
Band Width : 7 MHz
FFT : 2 K
Modulation : QAM 64
Code Rate : 3/4
Guard : 1/8
FEC Lock : DEMOD_LOCK

1/3

Fig.4 DTV Tuning Status (1/3) screen

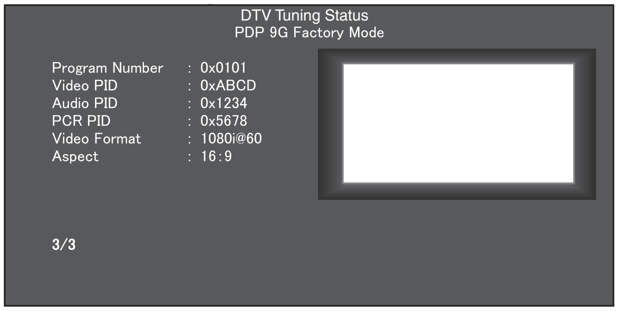


DTV Tuning Status
PDP 9G Factory Mode

Frequency : 675.4 MHz
FEC Lock : DEMOD_LOCK
IF AGC : 85
MER : 123
BER (Pre-V) : 1.234e-01
BER (Post-V) : 1.234e-01
Packet Error : 123456
Time : 45 sec

2/3

Fig.5 DTV Tuning Status screen (2/3) screen



DTV Tuning Status
PDP 9G Factory Mode

Program Number : 0x0101
Video PID : 0xABCD
Audio PID : 0x1234
PCR PID : 0x5678
Video Format : 1080i@60
Aspect : 16:9

3/3

Fig.6 DTV Tuning Status screen (3/3) screen

[6] SOFTWARE VERSION SCREEN

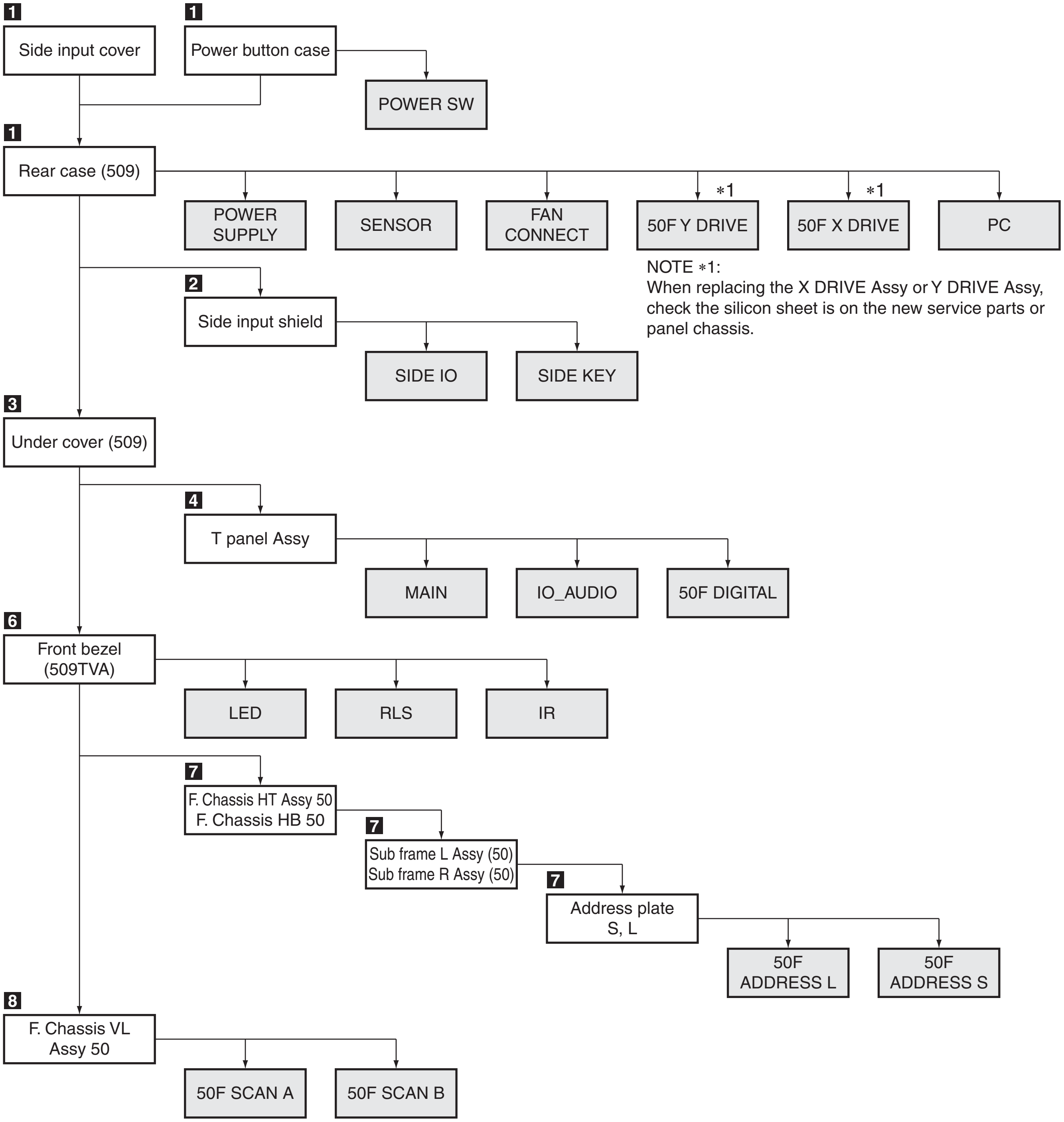
The details are not described here, as this is provided for technical examination.

7. DISASSEMBLY

7.1 FLOWCHART OF REMOVAL ORDER

Note: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Flowchart of removal order for the main parts and boards


1 Side input cover
1 Power button case
POWER SW
1 Rear case (509)
POWER SUPPLY
SENSOR
FAN CONNECT
50F Y DRIVE *1
50F X DRIVE *1
PC
2 Side input shield
SIDE IO
SIDE KEY
3 Under cover (509)
4 T panel Assy
MAIN
IO_AUDIO
50F DIGITAL
6 Front bezel (509TVA)
LED
RLS
IR
7 F. Chassis HT Assy 50 F. Chassis HB 50
7 Sub frame L Assy (50) Sub frame R Assy (50)
7 Address plate S, L
50F ADDRESS L
50F ADDRESS S
8 F. Chassis VL Assy 50
50F SCAN A
50F SCAN B

NOTE ∗1:
When replacing the X DRIVE Assy or Y DRIVE Assy, check the silicon sheet is on the new service parts or panel chassis.

7.2 DISASSEMBLY

Disassembly

1 Rear Case (509)

● Power button case

① Remove the two screws. (ABA1379)

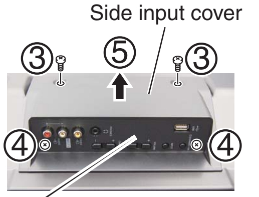
② Remove the power button case.

● Side input cover

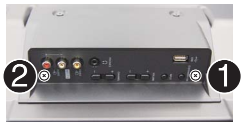
③ Remove the two screws. (ABA1378)

④ Remove the two screws. (ABA1377)

⑤ Remove the side input cover.

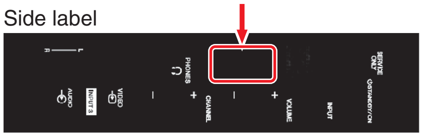


• Screw tightening order
The other screws are random order.

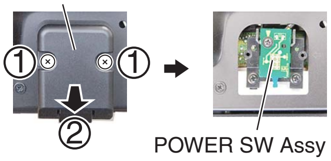


A cutout for an HDMI connector is provided on the side input cover, and the side label is attached over the cutout. Be careful not to accidentally push on the area of the label indicated in the figure below, because that area will become indented.

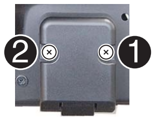
Side label



Power button case



• Screw tightening order



● Rear case (509)

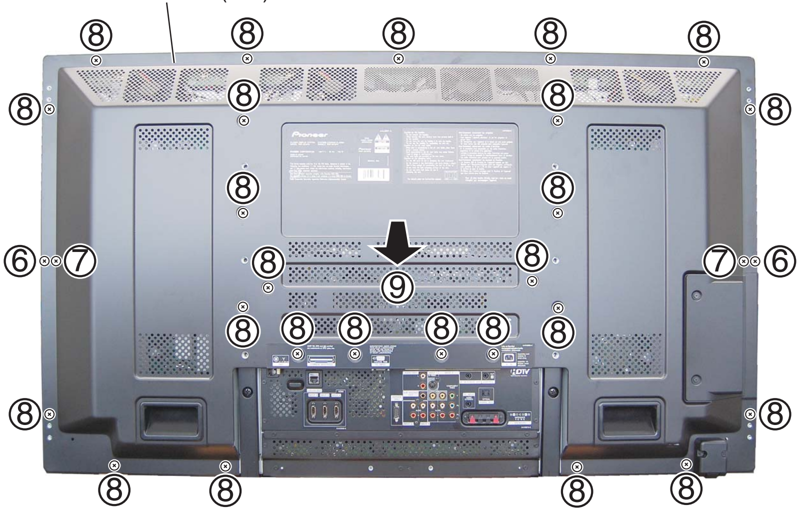
⑥ Remove the two screws. (ABA1380)

⑦ Remove the two screws. (ABA1379)

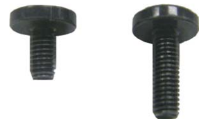
⑧ Remove the 25 screws. (ABA1377)

⑨ Remove the rear case (509).

Rear case (509)

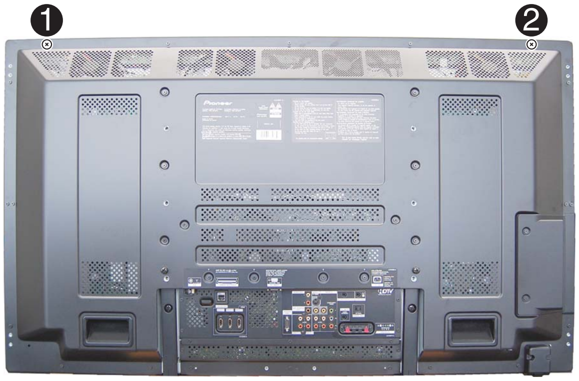


Reference



■ Screw tightening order

The other screws are random order.



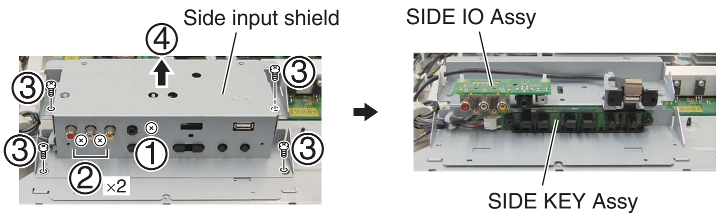
2 Side Input Shield

① Remove the one screw. (BMZ30P080FTB)

② Remove the two screws. (BPZ30P080FTB)

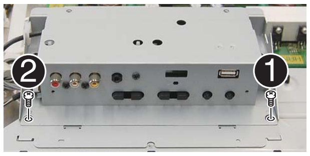
③ Remove the four screws. (AMZ30P060FTB)

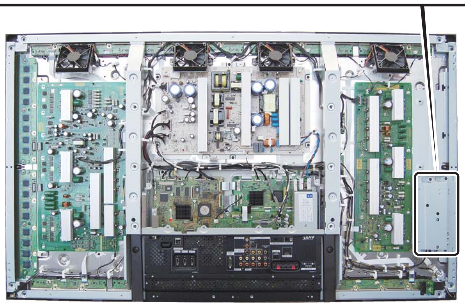
④ Remove the side input shield.


④
Side input shield
③
③
③
①
③
②
×2
SIDE IO Assy
SIDE KEY Assy

- **Screw tightening order**

The other screws are random order.

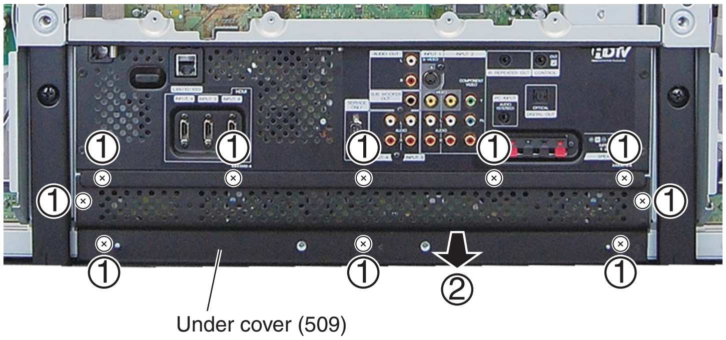




3 Under Cover (509)

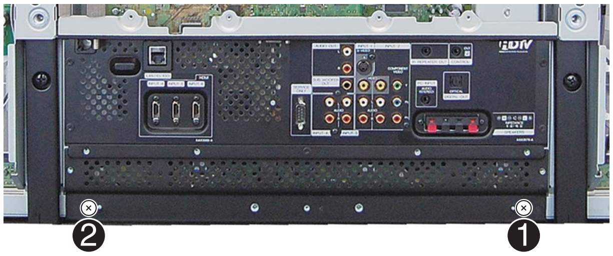
① Remove the 10 screws. (ABA1377)

② Remove the under cover (509).


①
①
①
①
①
①
①
①
①
①
②
Under cover (509)

■ Screw tightening order

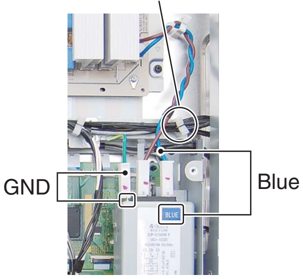
The other screws are random order.



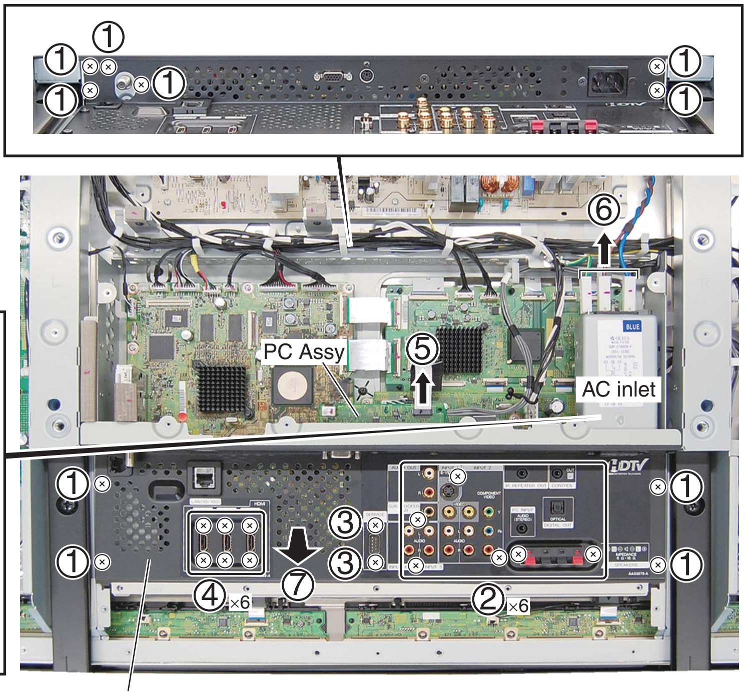
4 T Panel Assy

① Remove the 10 screws. (ABA1377)
② Remove the six screws. (BPZ30P080FTB)
③ Remove the two hexagon head screws. (ABA1382)
④ Remove the six screws. (BMZ30P060FTB)
⑤ Disconnect the one flexible cable.
⑥ Disconnect the three connectors.
⑦ Remove the T panel Assy.

Do NOT pass the AC inlet jumper wire through this wire saddle.



AC inlet

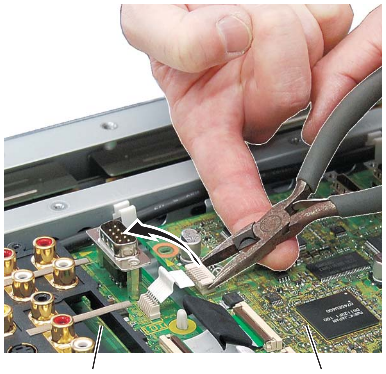

①
①
①
①
①
①
⑥
PC Assy
⑤
AC inlet
①
①
①
①
③
③
④×6
⑦
②×6

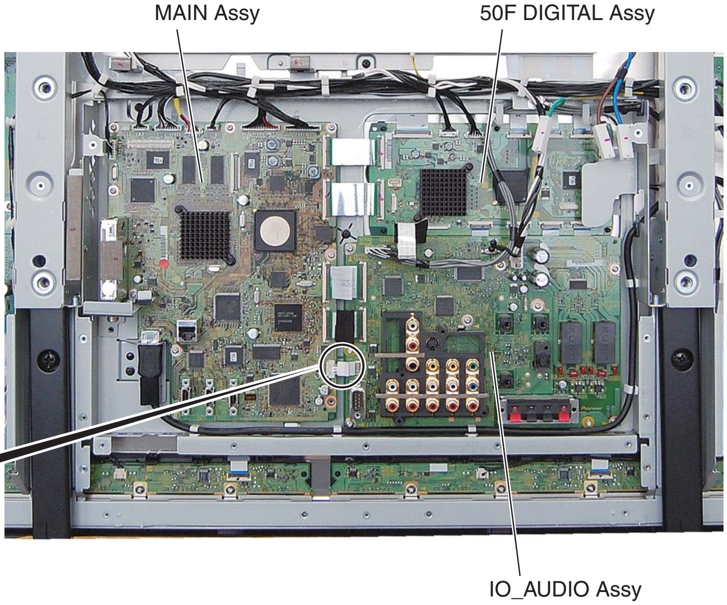
T panel AU Assy (PDP-LX509A)
T panel C509A Assy (PDP-C509A)

Note: The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype. Upon servicing, be sure to restore the original wiring of the unit after repair work.

■ How to remove the bridge connector

(1) Grip the two short edges of the connector with longnose pliers.
(2) Insert a finger between the longnose pliers and the board to protect the board and the mounted parts on the board from accidental damage by the pliers then, using your finger as a fulcrum and the pliers as a lever, pry the connector upward to remove it.

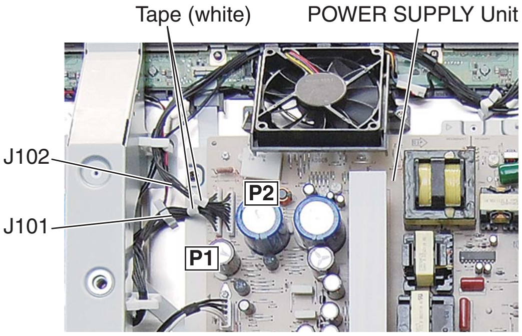

IO_AUDIO Assy
MAIN Assy


MAIN Assy
50F DIGITAL Assy
IO_AUDIO Assy

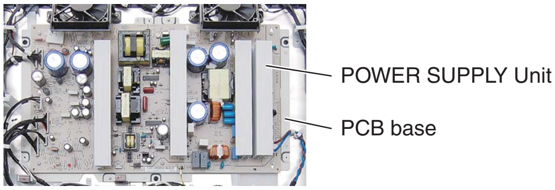
Notes on Lead Dressing

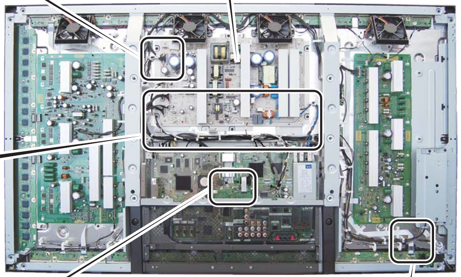
Note: The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype.
Upon servicing, be sure to restore the original wiring of the unit after repair work.

The J101 and J102 cables require correct orientation for connection. Connect the connectors with white tape to the POWER SUPPLY Unit.

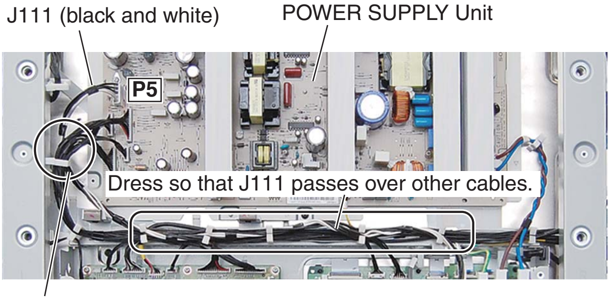

Tape (white)
POWER SUPPLY Unit
J102
J101
P2
P1

When removing the POWER SUPPLY Unit, be sure to remove not only the POWER SUPPLY Unit but entire PCB base.


POWER SUPPLY Unit
PCB base



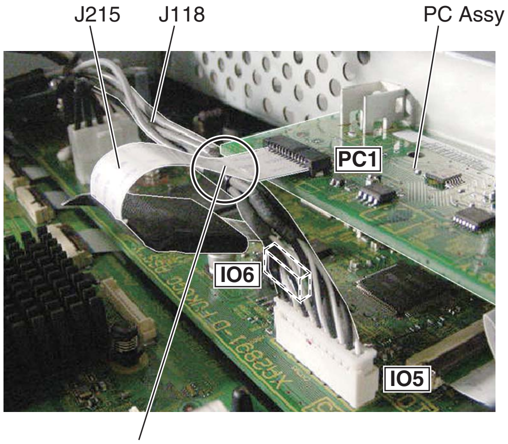
Around the periphery of the Multibase, the J111 cable wires (black and white) must be bound lastly then be dressed so that they pass over other cables.


J111 (black and white)
POWER SUPPLY Unit
P5

Dress so that J111 passes over other cables.

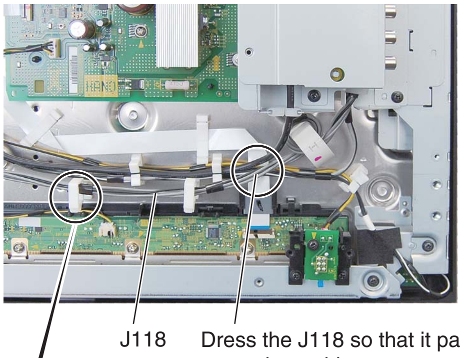
Dress the J111 so that it passes under other cables.

The J215 cable must be passed over the J118 cable.


J215
J118
PC Assy
PC1
IO6
IO5

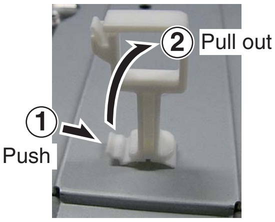
Pass J215 over J118.

Dress the J118 cable so that it passes over other cables.



Dress the J118 so that it passes over other cables.

How to remove the newly adopted wire saddle from the chassis


② Pull out
① Push

5 Access to 50F DIGITAL Assy

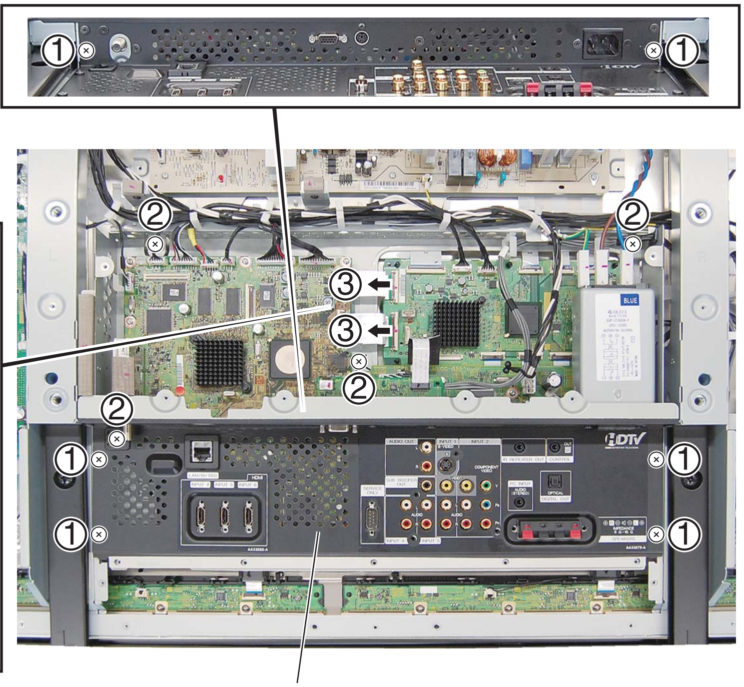
Note: The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype. Upon servicing, be sure to restore the original wiring of the unit after repair work.

Note:
When you remove whole Multibase Section, it is not necessary to remove T panel Assy.

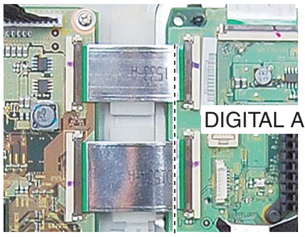
① Remove the six screws. (ABA1377)

② Remove the four screws. (ABA1313)

③ Disconnect the two flexible cables.

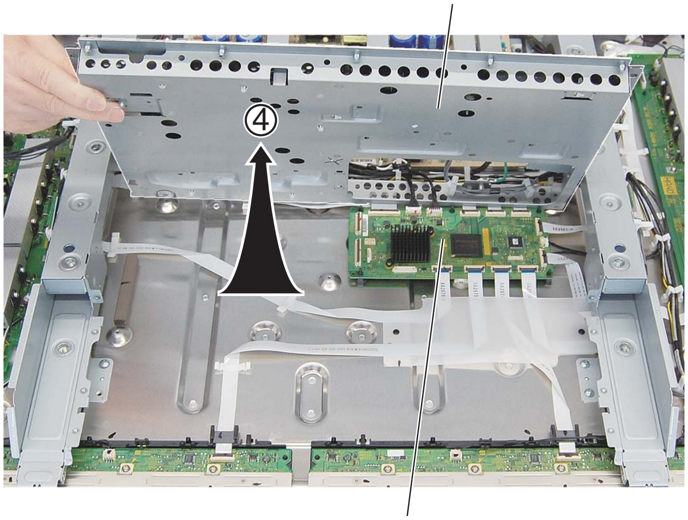


Note on connection of the flexible cable
This flexible cables requires correct orientation for connection. Connect the folded side of the cable to the connector on the DIGITAL Assy, as shown in the photo below. **Reversely connecting the cable will damage the Assy.**



T panel AU Assy (PDP-LX509A)
T panel C509A Assy (PDP-C509A)

④ Lift the Multibase Section to the direction of the arrow.

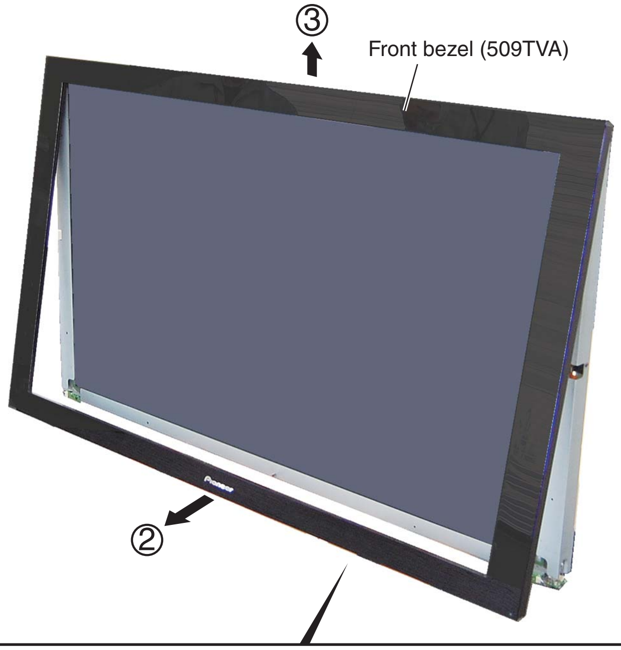


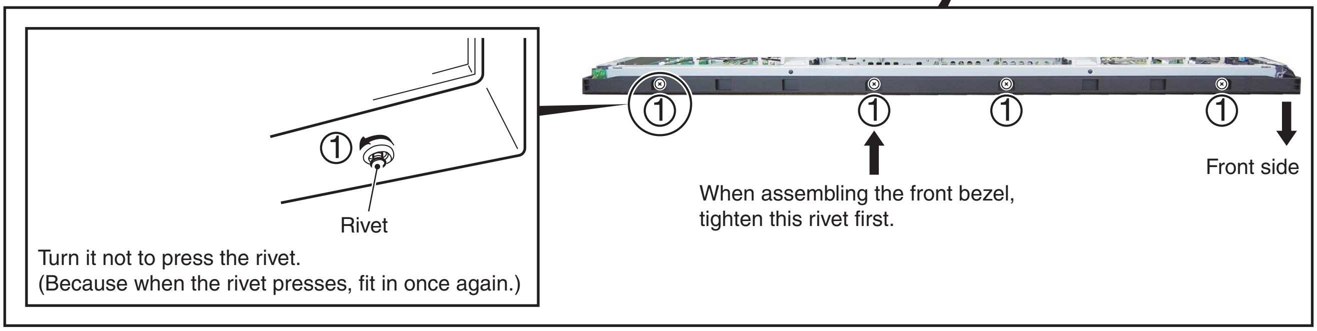
6 Front Bezel (509TVA)

① Remove the four rivets.

② Pull the lower part of the front bezel (509TVA) toward you and out.

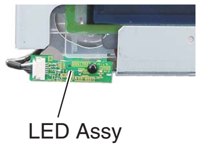
③ Remove the front bezel (509TVA), by pulling it upward.

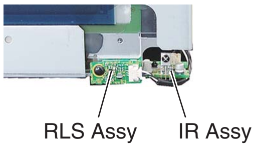

③
Front bezel (509TVA)
②


①
Rivet
①
①
①
①
Front side

Turn it not to press the rivet.
(Because when the rivet presses, fit in once again.)

When assembling the front bezel, tighten this rivet first.

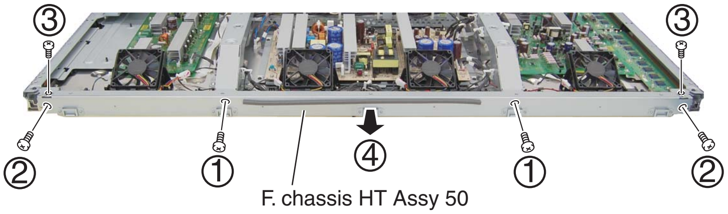



RLS Assy
IR Assy

7 Access to ADDRESS L and S Assys

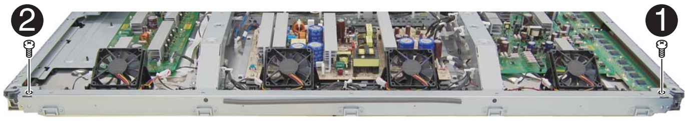
● F. Chassis HT Assy 50

① Remove the two screws. (AMZ30P060FTB)
② Remove the two screws. (ABZ30P080FTC)
③ Remove the two screws. (AMZ30P060FTB)
④ Remove the F. chassis HT Assy 50.



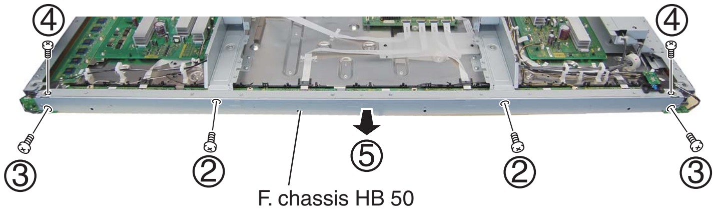
■ Screw tightening order

The other screws are random order.



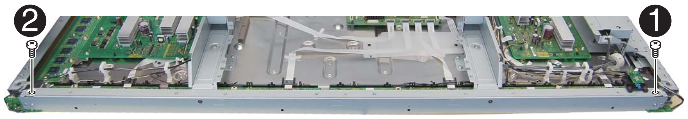
● F. Chassis HB 50

① Disconnect cables, connectors, as required.
② Remove the two screws. (AMZ30P060FTB)
③ Remove the two screws. (ABZ30P080FTC)
④ Remove the two screws. (AMZ30P060FTB)
⑤ Remove the F. chassis HB 50.



■ Screw tightening order

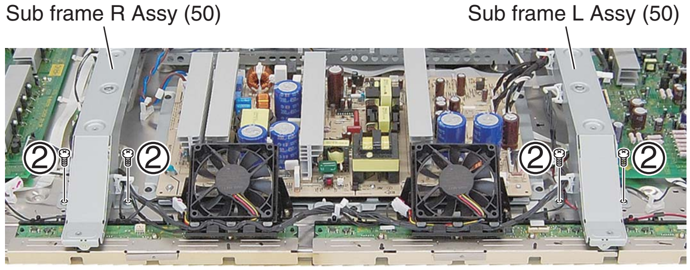
The other screws are random order.



● Sub frame L and R Assys

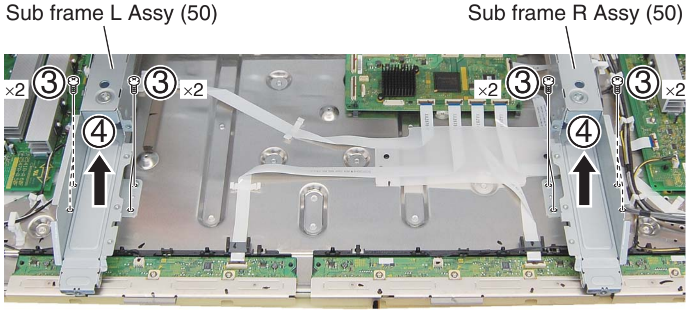
① Disconnect cables, connectors, as required.

② Remove the four screws. (TBZ40P060FTC)


Sub frame R Assy (50)
Sub frame L Assy (50)
②
②
②
②

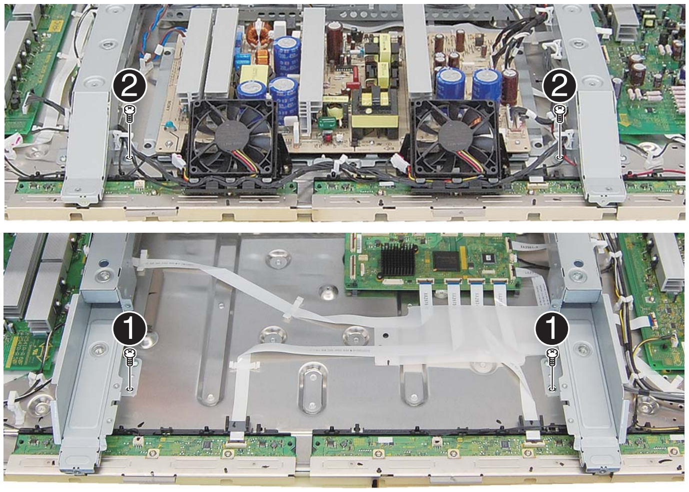
③ Remove the eight screws. (TBZ40P060FTC)

④ Remove the sub frame L and Assys.


Sub frame L Assy (50)
Sub frame R Assy (50)
×2 ③
③ ×2
×2 ③
③ ×2
④
④

■ Screw tightening order

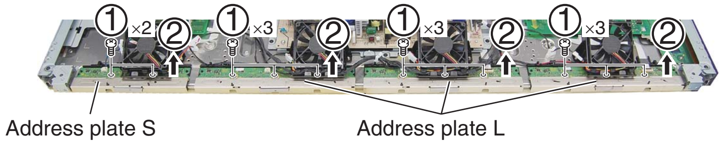
The other screws are random order.

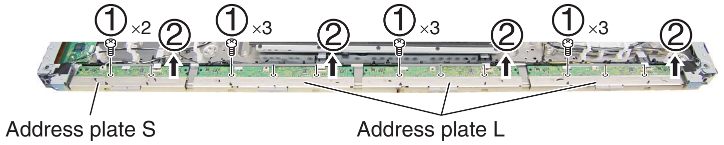


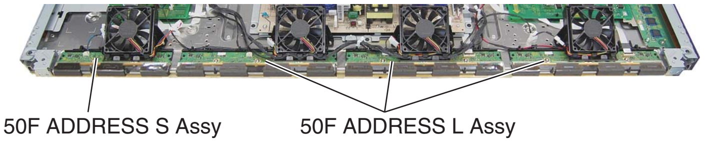
● Address plate S , L

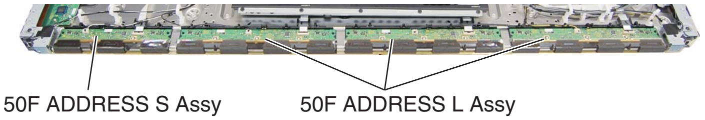
① Remove the 22 screws. (ABA1351)

② Remove the two address plates S and six address plates L.


① ×2
②
① ×3
②
① ×3
②
① ×3
②
Address plate S
Address plate L


① ×2
②
① ×3
②
① ×3
②
① ×3
②
Address plate S
Address plate L


50F ADDRESS S Assy
50F ADDRESS L Assy


50F ADDRESS S Assy
50F ADDRESS L Assy

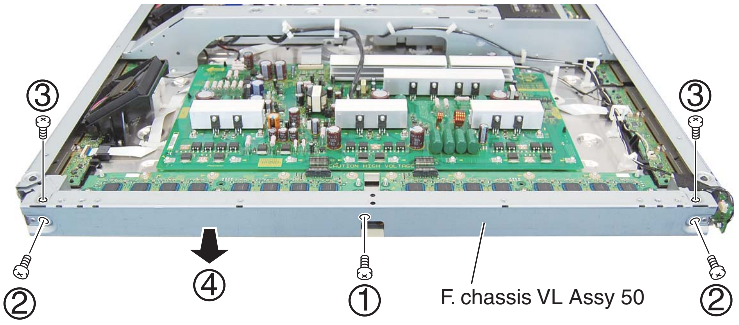
8 Access to SCAN A and B Assys

① Remove the one screw. (APZ30P080FTB)

② Remove the two screws. (ABZ30P080FTC)

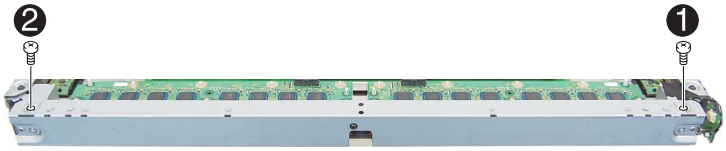
③ Remove the two screws. (AMZ30P060FTB)

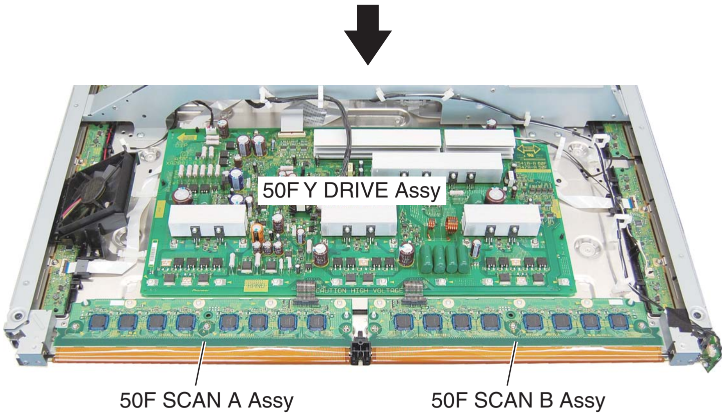
④ Remove the F. chassis VL Assy 50.


③
③
②
④
①
F. chassis VL Assy 50
②

Screw tightening order

The other screws are random order.




50F Y DRIVE Assy
50F SCAN A Assy
50F SCAN B Assy

8. EACH SETTING AND ADJUSTMENT

1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

POWER SUPPLY Unit	➡	Refer to “8.3 HOW TO CLEAR HISTORY DATA” .
DIGITAL Assy	➡	Writing of backup data is required. Refer to the “8.2 BACKUP OF THE EEPROM (DIGITAL ASSY)”.
X DRIVE Assy	➡	No adjustment required
Y DRIVE Assy	➡	No adjustment required
Service Panel Assy	➡	Refer to “8.3 HOW TO CLEAR HISTORY DATA” and “8.4 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED”.
MAIN Assy (*)	➡	Execute section [4-5] AUTO ADJUSTMENT of 6.2 [4] INITIALIZE.
IO_AUDIO Assy	➡	Execute section [4-5] AUTO ADJUSTMENT of 6.2 [4] INITIALIZE.
SENSOR Assy	➡	No adjustment required Backup data are automatically copied during the next power-off.
Other assemblies	➡	No adjustment required

(*) : When replacing the MAIN Assy, be sure to perform the FINAL SETUP.

When any of the following parts is replaced

Notes on replacing parts

For the parts described in the list below, replacement is required for the whole Assy, not only the defective part.
If any part listed below is identified as defective and needs replacement, replace the whole Assy, and make necessary adjustments after replacement.

PCB Assy No.	Assy Name	Parts that Require Whole-Assy Replacement		
		Ref No.	**Function Name**	**Part No.**
AWV2557 (PDP-LX509A) AWV2588 (PDP-C509A)	MAIN Assy	IC5002	EEPROM	BR24L02FV-W
		IC5003	EEPROM	BR24L02FV-W
		IC5004	EEPROM	BR24L02FV-W
		IC6001	System IC	BCM7404XKPB11G
		IC7004	EEPROM	BR24L64F-W
		IC6201	DDR SDRAM	EDD5116AFTA-5B-E
		IC6202	DDR SDRAM	EDD5116AFTA-5B-E
		IC6203	DDR SDRAM	EDD5116AFTA-5B-E
		IC6204	DDR SDRAM	EDD5116AFTA-5B-E
		IC6403	Flash ROM	AGC1084
		IC6701	Flash ROM	AGC1079
		IC6811	Flash UCOM	AGC1072
		IC7202	Flash ROM	AGC1077
AWV2543	DIGITAL Assy	IC3302	Flash ROM	AGC1071
		IC3601	Flash UCOM	AGC1070
AWW1359	PC Assy	IC8802	EEPROM	BR24L01AFJ-W
AWW2546	X DRIVE Assy	• Parts of X D-D CON BLOCK		
AWW2547	Y DRIVE Assy	• Parts of Y VF D-D CON BLOCK 1 • Parts of Y MAIN D-D CON BLOCK 1 • Parts of Y MAIN D-D CON BLOCK 2		

Reason: The whole Assy must be replaced, because adjustments and data rewriting for the Assy at the level of production line are required.

Parts whose replacement is difficult

For the parts described in the table below, replacement of individual parts is difficult, because a heat pad is provided under the bottom of the ICs.

PCB Assy No.	Assy Name	Ref No.	Function Name	Part No.
AWV2557 (PDP-LX509A) AWV2588 (PDP-C509A)	MAIN Assy	IC4501	DC/DC Converter	LTC3407EMSE-2
		IC4901	HDMI Rx	SII9125CTU
AWW1355	IO_AUDIO Assy	IC8401	Digital Amp	TAS5122DCA

POWER SUPPLY Unit	The assembly must be replaced as a unit, and no part replacement is allowed.
MAIN Assy	No adjustment is required after replacement of parts other than those shown in “8.6 ADJUSTMENT WHEN THE MAIN OR IO_AUDIO ASSY IS REPLACED.
IO_AUDIO Assy	No adjustment is required after replacement of parts other than those shown in “8.6 ADJUSTMENT WHEN THE MAIN OR IO_AUDIO ASSY IS REPLACED.
DIGITAL Assy	No adjustment required
X DRIVE Assy	No adjustment is required after replacement of parts other than those shown in “8.5 ADJUSTMENT WHEN THE DRIVE ASSYS ARE REPLACED.
Y DRIVE Assy	No adjustment is required after replacement of parts other than those shown in “8.5 ADJUSTMENT WHEN THE DRIVE ASSYS ARE REPLACED.
ADDRESS Assy	No adjustment required
SENSOR Assy	No adjustment required
Other assemblies	No adjustment required

8.2 BACKUP OF THE EEPROM (DIGITAL ASSY)

■ Outline

Adjustment data are stored in the EEPROM on the DIGITAL Assy in the production process. Those adjustment data are also automatically stored in the EEPROM (for backup) on the PANEL SENSOR Assy.
If the DIGITAL Assy is replaced, those adjustment data for backup can be copied from the EEPROM on the PANEL SENSOR Assy to a new DIGITAL Assy.

■ Backed up data

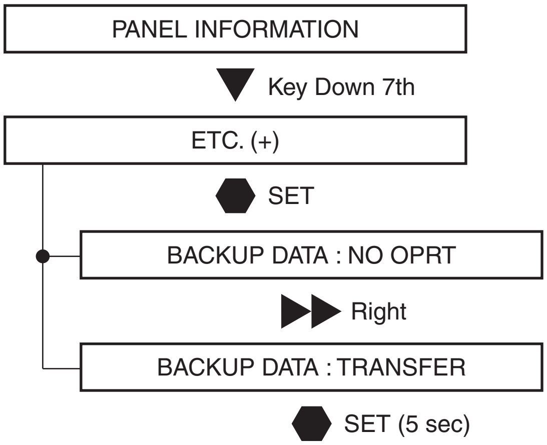
- Drive voltage adjustment value
- Panel white balance adjustment value
- Drive waveform adjustment value
- Hour-meter count
- Pulse-meter count
- P-ON counter value
- Serial No.
- PD/SD histories

■ How to copy backup data

1. When the DIGITAL Assy is replaced with one for service (usual service)

Immediately after the DIGITAL Assy is replaced, the EEPROM on the DIGITAL Assy is in the status "adjustment not completed," and the EEPROM for backup on the PANEL SENSOR Assy is in the status "adjustment completed." The LED on the main unit warns you that the adjustment data in the EEPROM for backup have not been copied to the EEPROM on the DIGITAL Assy, by lighting the red LED and flashing the blue LED. In such a case, the adjustment data for backup can be used by copying the data to the EEPROM on the DIGITAL Assy, with the following procedures:

(1) Copying, using the Factory menu
① Turn on the power.
② Enter the Panel Factory mode.
③ Display the PANEL INFORMATION page, then check if "NO DATA!" is set for "DIG. EEP" and "ADJUSTED" is set for "BACKUP".
④ Copy the backup data, as shown in the figure below.



⑤ Check if "ADJUSTED" is set for "DIG. EEP" on the PANEL INFORMATION page.
⑥ Turn off the power.

(2) Copying, using the RS-232C commands
① Turn on the power.
② Issue the FAY command.
③ With the QS2 command, confirm that the main unit adjustment flag is "adjustment not completed" and that the adjustment backup flag is "adjustment completed."
④ Issue the BCP command to transfer the data stored in the EEPROM for backup.
⑤ With the QS2 command, confirm that the main unit adjustment flag becomes "adjustment completed."
⑥ Turn off the power.

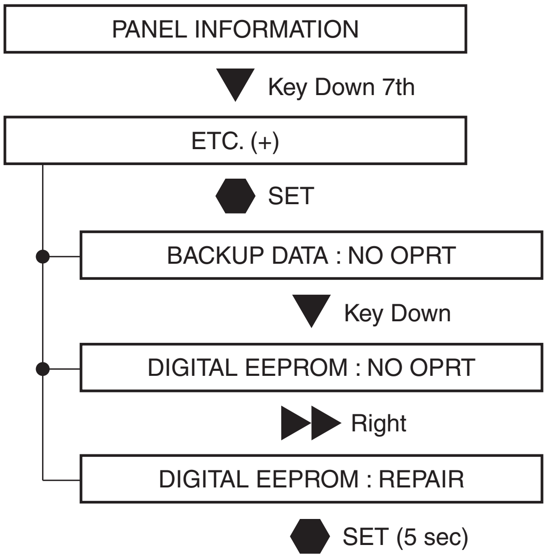
Note: If both the DIGITAL and PANEL SENSOR Assys are to be replaced, replace the PANEL SENSOR Assy first in order to store the backup data. Then turn the unit on then back off again, then replace the DIGITAL Assy.

2. When manual adjustment is required after the DIGITAL Assy is replaced with one for service

If backup data cannot be transferred to the DIGITAL Assy because of defective parts, etc., after the DIGITAL Assy is replaced and manual adjustment is performed, those manually adjusted data can be registered as adjusted data with the following procedures. Once the data on the DIGITAL Assy are registered as adjusted data, the adjustment data for backup will be automatically updated each time the unit is turned off. Therefore, if a DIGITAL Assy with adjusted data is mounted on the unit, the following procedures are not required, even after manual adjustment.

(1) Copying, using the Factory menu

① Turn on the power.
② Enter the Panel Factory mode.
③ Display the PANEL INFORMATION page, then check if "NO DATA!" is set for "DIG. EEP".
④ Register the changed adjustment data as adjusted data, as described for the following procedures, then transfer them as backup data.



⑤ Check if "ADJUSTED" is set for "DIG. EEP" on the PANEL INFORMATION page.
⑥ Turn off the power.

(2) Copying, using the RS-232C commands

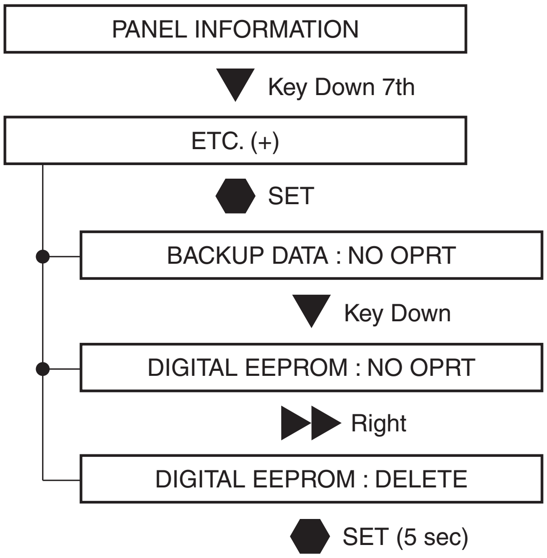
① Turn on the power.
② Issue the FAY command.
③ With the QS2 command, confirm that the main unit adjustment flag is "adjustment not completed."
④ Issue the FAJ command to register the changed adjustment data as adjusted data then transfer them as backup data.
⑤ With the QS2 command, confirm that the main unit adjustment flag becomes "adjustment completed."
⑥ Turn off the power.

3. When a secondhand DIGITAL Assy is to be reused

A DIGITAL Assy in good condition that had been mounted in another product can be reused. Before reuse, by following the procedures described below, make the data in the EEPROM on the DIGITAL Assy "adjustment not completed" data in order to prevent accidental updating of backup data when the secondhand DIGITAL Assy is mounted in another product

(1) Copying, using the Factory menu

① Turn on the power.
② Enter the Panel Factory mode.
③ Display the PANEL INFORMATION page, then check if "ADJUSTED" is set for "DIG. EEP".
④ Make the data in the EEPROM on the DIGITAL Assy "adjustment not completed" data, by following the procedures below:



⑤ Check if "NO DATA!" is set for "DIG. EEP" on the PANEL INFORMATION page.
⑥ Turn off the power.

(2) Copying, using the RS-232C commands

① Turn on the power.
② Issue the FAY command.
③ With the QS2 command, confirm that the main unit adjustment flag is "adjustment completed."
④ Issue the UAJ command to make the data in the EEPROM on the DIGITAL Assy "adjustment not completed" data.
⑤ With the QS2 command, confirm that the main unit adjustment flag becomes "adjustment not completed."
⑥ Turn off the power.

Note: If you mount a secondhand Assy to the product without performing the above procedures, the adjustment data and logs for the main unit specific to the product will be erased, and those of the secondhand Assy will be copied when the unit is turned off.

8.3 HOW TO CLEAR HISTORY DATA

■ Clearance of various logs after the Assys are replaced

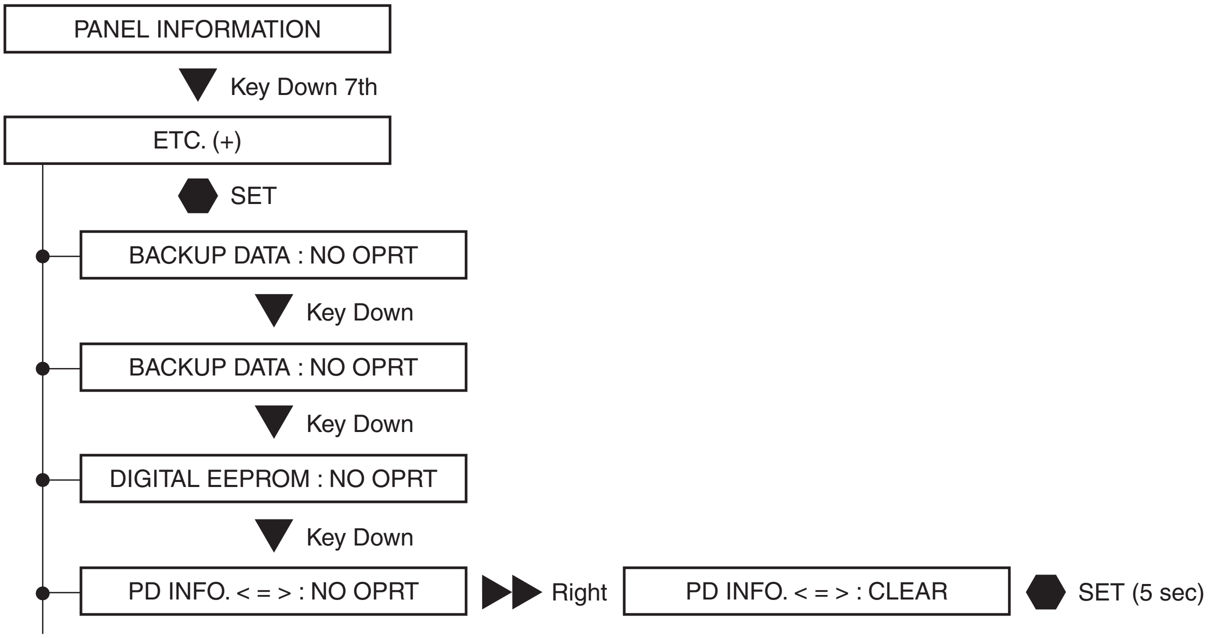
Besides adjustment data, data on accumulated power-on time and logs on defective parts of the product are backed up.
Some of those data must be cleared after the Assys are replaced for service.
Clearance of those data can be performed in the ETC layer of the Factory menu or with RS232C commands.

Item	Content	Clearing at the Replacement			Clearing method	
		Panel	POWER SUPPLY Unit	Other parts	Factory Menu (ETC layer)	RS-232C Commands
Hour-meter	Accumulated power-on time	Must be cleared	No need to be cleared	No need to be cleared	HR-MTR INFO.	CHM
Pulse-meter	Accumulated number of pulses emitted	Must be cleared (mandatory)	No need to be cleared	No need to be cleared	PM/B1-B5	CPM
Shutdown history of the panel	Causes and hour-meter values for the last eight shutdowns (SD) of the Panel	Must be cleared	No need to be cleared	No need to be cleared	SD INFO.	CSD
Power-down history	Causes and hour-meter values for the last eight power-downs (PDs) of the Panel	Must be cleared	No need to be cleared	No need to be cleared	PD INFO.	CPD
Power-on counter	Relay-on count	No need to be cleared	Must be cleared (mandatory)	No need to be cleared	P COUNT INFO.	CPC
MAX TEMP	Historical max. temperature of the panel	Must be cleared	Must be cleared	Must be cleared	MAX TEMP.	CMT

Notes:
- As the pulse-meter count is used for each correction function, the log must be cleared when the panel is replaced.
- After you clear the log, the unit must be turned off then back on again to reflect the cleared data for each correction function. If any adjustment is required after clearing the log, be sure to turn the unit off then back on again before adjustment.

(1) Clearance of logs, using the Factory menu
① Turn on the power.
② Enter the Panel Factory mode.
③ Clear the various logs, as shown in the figure below.

Note: The following example shows how to clear the PD log (PD INFO.). To clear other items, select each item you wish to clear then perform the same procedures.



④ Turn off the power.

(2) Using the RS-232C commands
① Turn on the power.
② Issue the FAY command.
③ Issue the Delete command for a log you wish to clear.
④ Turn off the power.

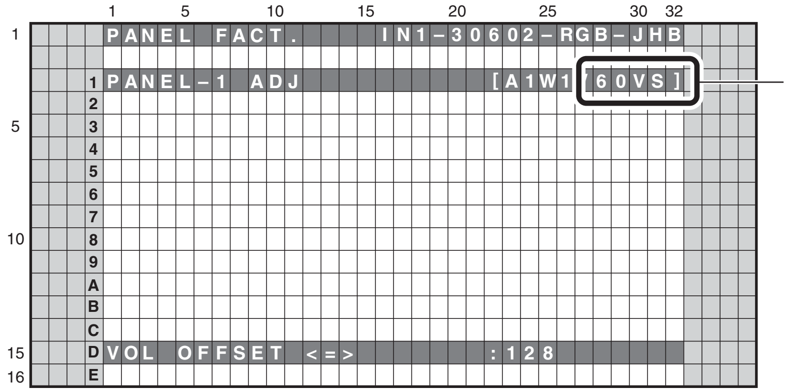
8.4 ADJUSTMENT WHEN THE SERVICE PANEL ASSY IS REPLACED

After the panel is replaced with one for service, voltage margin adjustment is required.

[Preparation]

Basically, voltage margin adjustment is performed using the Panel Factory menu.
After the panel is replaced and the unit is turned on, clear the pulse meter first.
For details on how to clear the pulse meter, see "8.3 HOW TO CLEAR HISTORY DATA".

∗1: As various corrections are made referring to the pulse-meter count to calculate how long the panel has been used, if adjustment of the panel for service is performed without clearing the pulse-meter count, proper adjustments will not be performed.
∗2: The drive sequence for Video 60-Hz is used for adjustment. When adjustment is made using the Panel Factory menu, the current drive sequence is displayed on the screen, as shown in the figure below. Make sure that 60VS is always indicated during adjustment.



```
 PANEL FACT.       IN1-30602-RGB-JHB

1PANEL-1 ADJ            [A1W1][60VS]
...
DVOL OFFSET <=>         :128
E
```

Drive sequence indication

Example of the On-Screen display during Panel Factory mode

[Supplement]

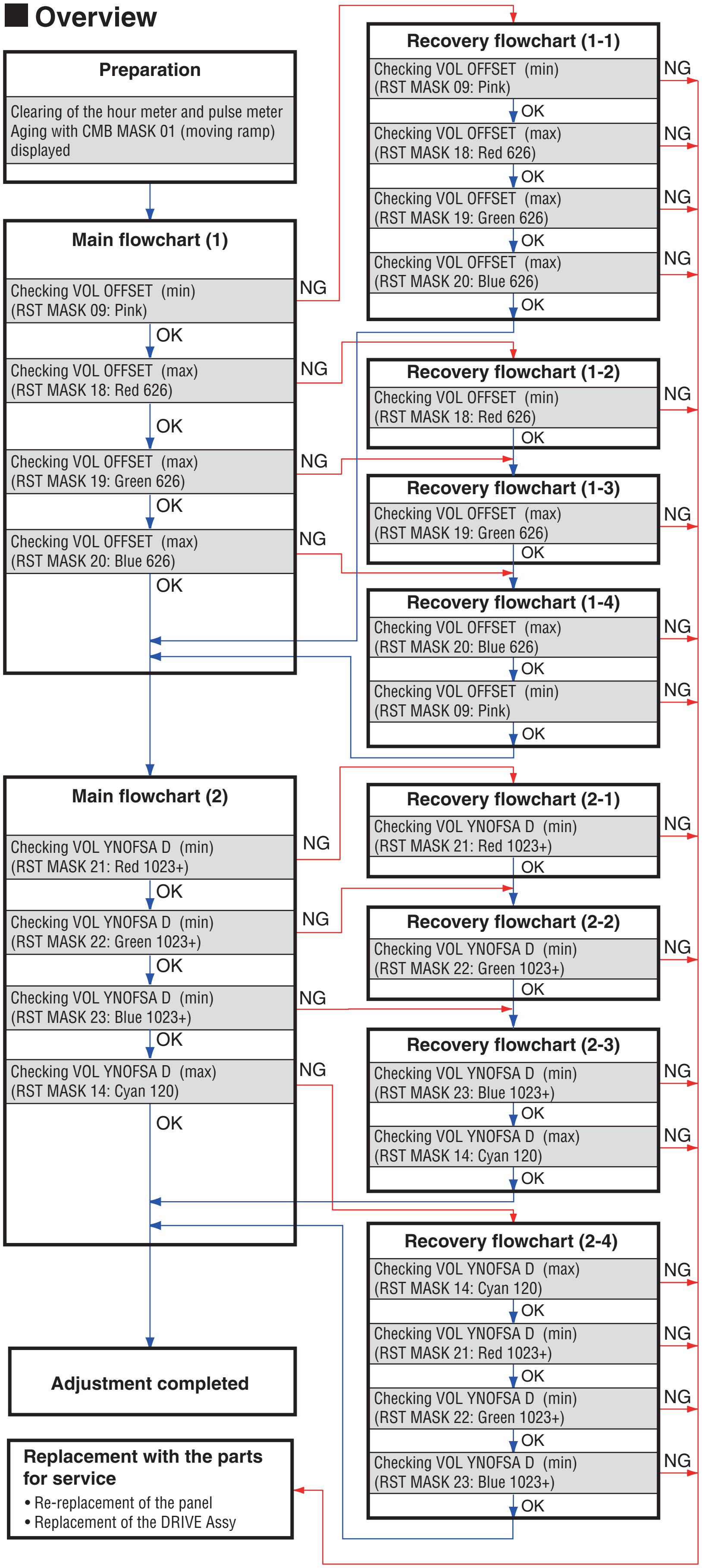
In the "PANEL-1ADJ" layer, the Panel White Balance value is reset to default, Panel Gamma is set to Straight, Noise is set to OFF, LUT mode is set to ON and Reset active control is set to OFF.
If adjustment is performed using RS232C commands, unlike the case of Factory menu operation, adjustments are not interlocked. Therefore, settings must be performed individually, by issuing commands. (See the section on preparations before adjustment.)

Note

Two types of 9G 50-inch panels exist for this destination. During panel replacement, if a different type of panel is attached by mistake, lighting of cells is not executed properly, and life adjustment cannot be done properly.
Before performing adjustment after panel replacement, be sure to confirm that the new panel for service is an appropriate panel and that the adjustment flowchart is suitable for the panel.

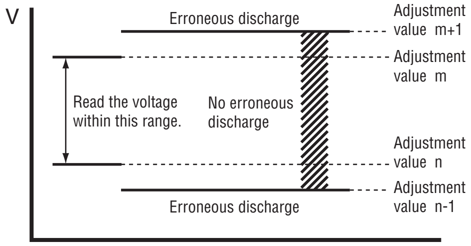
[How to confirm the type of the panel]
- Check the serial number (See the note described on the cover of this manual.)
- Check on the Factory menu that the PANEL INFO item is G9_50F_1.
- Check by issuing the QS1 command that “Panel information” is “G9_50F_1.”

Overview


Preparation
Clearing of the hour meter and pulse meter
Aging with CMB MASK 01 (moving ramp) displayed
Main flowchart (1)
Checking VOL OFFSET (min) (RST MASK 09: Pink)
Checking VOL OFFSET (max) (RST MASK 18: Red 626)
Checking VOL OFFSET (max) (RST MASK 19: Green 626)
Checking VOL OFFSET (max) (RST MASK 20: Blue 626)
Main flowchart (2)
Checking VOL YNOFSA D (min) (RST MASK 21: Red 1023+)
Checking VOL YNOFSA D (min) (RST MASK 22: Green 1023+)
Checking VOL YNOFSA D (min) (RST MASK 23: Blue 1023+)
Checking VOL YNOFSA D (max) (RST MASK 14: Cyan 120)
Adjustment completed
Replacement with the parts for service
• Re-replacement of the panel
• Replacement of the DRIVE Assy
Recovery flowchart (1-1)
Checking VOL OFFSET (min) (RST MASK 09: Pink)
Checking VOL OFFSET (max) (RST MASK 18: Red 626)
Checking VOL OFFSET (max) (RST MASK 19: Green 626)
Checking VOL OFFSET (max) (RST MASK 20: Blue 626)
Recovery flowchart (1-2)
Checking VOL OFFSET (min) (RST MASK 18: Red 626)
Recovery flowchart (1-3)
Checking VOL OFFSET (max) (RST MASK 19: Green 626)
Recovery flowchart (1-4)
Checking VOL OFFSET (max) (RST MASK 20: Blue 626)
Checking VOL OFFSET (min) (RST MASK 09: Pink)
Recovery flowchart (2-1)
Checking VOL YNOFSA D (min) (RST MASK 21: Red 1023+)
Recovery flowchart (2-2)
Checking VOL YNOFSA D (min) (RST MASK 22: Green 1023+)
Recovery flowchart (2-3)
Checking VOL YNOFSA D (min) (RST MASK 23: Blue 1023+)
Checking VOL YNOFSA D (max) (RST MASK 14: Cyan 120)
Recovery flowchart (2-4)
Checking VOL YNOFSA D (max) (RST MASK 14: Cyan 120)
Checking VOL YNOFSA D (min) (RST MASK 21: Red 1023+)
Checking VOL YNOFSA D (min) (RST MASK 22: Green 1023+)
Checking VOL YNOFSA D (min) (RST MASK 23: Blue 1023+)
OK
NG

Range of margin measuring

Read the voltage within the hysteresis (stricter value).


V
Erroneous discharge
Adjustment value m+1
Adjustment value m
Read the voltage within this range.
No erroneous discharge
Adjustment value n
Adjustment value n-1
Erroneous discharge

Definition of limits for the voltage margins (abnormal lit/dead cells)

Abnormal lit cells:

- Five or fewer abnormal cells on the whole screen
- Two or fewer abnormal cells within a radius of 1 cm

Abnormal dead cells

- Fifteen or fewer abnormal cells on the whole screen
- Two or fewer abnormal cells within a radius of 1 cm

*: Abnormal cells visually recognizable at a distance of 1 meter from the panel must be counted.

*: Cells displayed abnormally for less than one second are not counted as abnormal cells.

Definition of tones for the measuring signals

FHD signal (1920*1080)/Video 60-Hz sequence /Dither: ON, L dither: ON, noise: OFF

Pink	RST MASK 09 (R 1023 /G 626 /B 1023)
Cyan 120	RST MASK 14 (R 0 /G 120 /B 120)
Red 626	RST MASK 18 (R 626 /G 0 /B 0)
Green 626	RST MASK 19 (R 0 /G 626 /B 0)
Blue 626	RST MASK 20 (R 0 /G 0 /B 626)
Red 1023+	RST MASK 21 (R 1023 /G 120 /B 120)
Green 1023+	RST MASK 22 (R 120 /G 1023 /B 120)
Blue 1023+	RST MASK 23 (R 120 /G 120 /B 1023)

Interlocked settings for Voltages Vyknofs1/3/4

For the 9th-generation PDPs, interlocked setting for Voltages Vyknofs1/3/4 is available on the Factory menu or with RS232C commands, for easier adjustment. Therefore, in the adjustment flowchart, the interlocked setting function is used. (Individual setting for each adjustment value is also possible, as in the conventional setting methods.

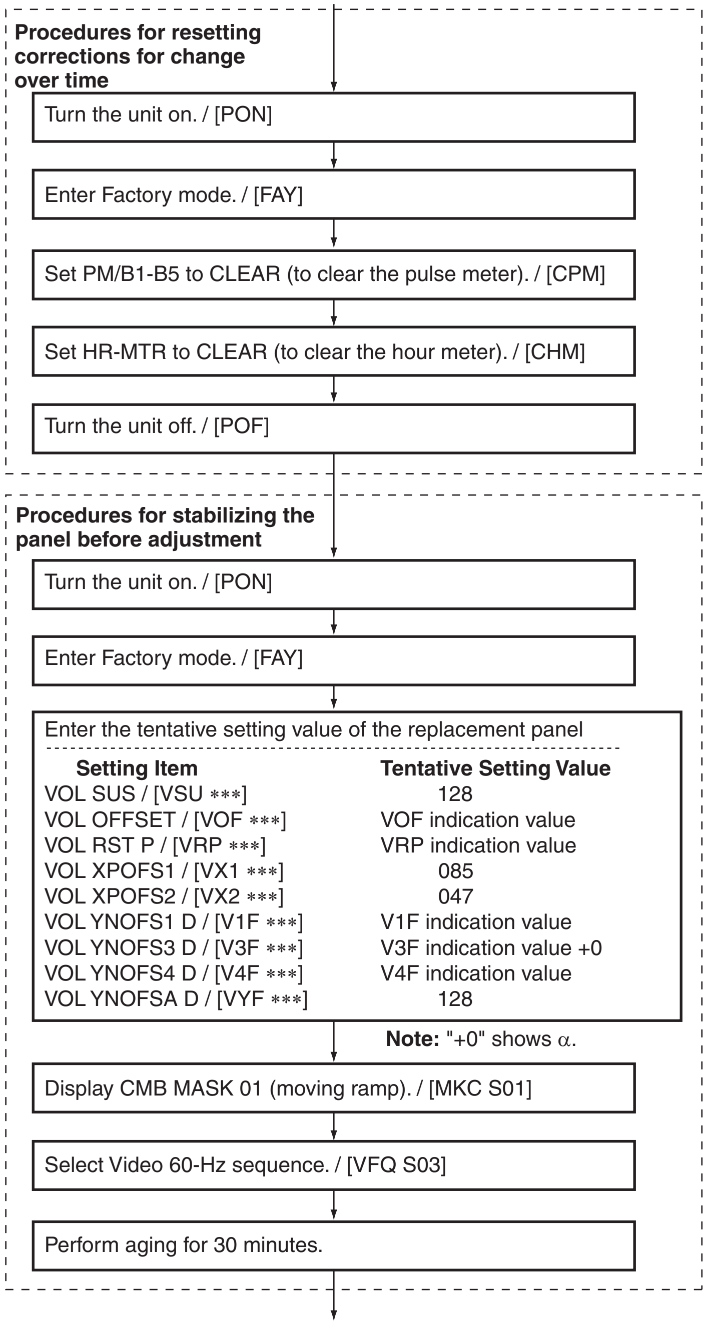
Set Voltage	Factory Menu	Command
Vyknofs1 individual	VOL YNOFS1 D	[V1F]
Vyknofs3 individual	VOL YNOFS3 D	[V3F]
Vyknofs4 individual	VOL YNOFS4 D	[V4F]
Vyknofs1,3,4 interlocked	VOL YNOFSA D	[VYF]

Note:

- The initial value for the interlocked setting value is 128, including for factory preset values.
- See "[3] DRIVE ASSY" of "5.2 DIAGNOSIS FLOWCHART OF FAILURE ANALYSIS" for calculation of actually used voltage values.

Preparation before adjustment

[Replacement with the panel for service is completed.]



Procedures for resetting corrections for change over time

Turn the unit on. / [PON]

Enter Factory mode. / [FAY]

Set PM/B1-B5 to CLEAR (to clear the pulse meter). / [CPM]

Set HR-MTR to CLEAR (to clear the hour meter). / [CHM]

Turn the unit off. / [POF]

Procedures for stabilizing the panel before adjustment

Turn the unit on. / [PON]

Enter Factory mode. / [FAY]

Enter the tentative setting value of the replacement panel

Setting Item	Tentative Setting Value
VOL SUS / [VSU ∗∗∗]	128
VOL OFFSET / [VOF ∗∗∗]	VOF indication value
VOL RST P / [VRP ∗∗∗]	VRP indication value
VOL XPOFS1 / [VX1 ∗∗∗]	085
VOL XPOFS2 / [VX2 ∗∗∗]	047
VOL YNOFS1 D / [V1F ∗∗∗]	V1F indication value
VOL YNOFS3 D / [V3F ∗∗∗]	V3F indication value +0
VOL YNOFS4 D / [V4F ∗∗∗]	V4F indication value
VOL YNOFSA D / [VYF ∗∗∗]	128

Note: "+0" shows α.

Display CMB MASK 01 (moving ramp). / [MKC S01]

Select Video 60-Hz sequence. / [VFQ S03]

Perform aging for 30 minutes.

[To the Main flowchart (1)]

∗ To reflect the results of log clearing for each correction function, the unit must be turned off then back on again. Before adjustment, be sure to turn the unit off then back on again.

Indication example of the adjustment label of service panel

AWU1340 Data **VOF=129**
VRP=031 **V1F=143** **V3F=128+α**
V4F=172 **Hour Meter_ _ _ _ _ _ _ _ _ _ H**
Data 08/02/28 Chassis CXX99999
Time 18:27 Pnl FD4A0808100123

Note: The symbol "α" denotes the adjustment value plus 0.

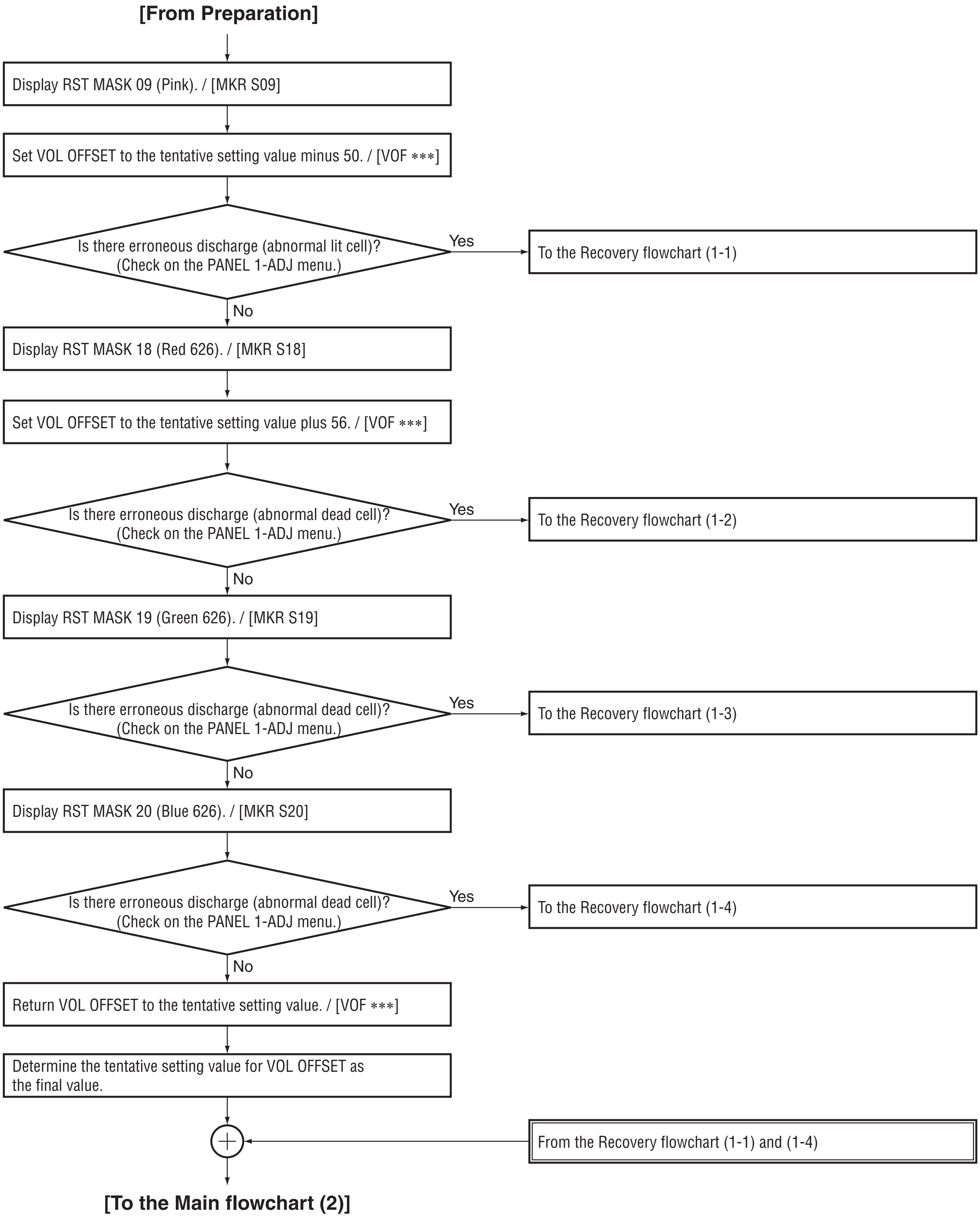
∗ Each setting value described on the adjustment label denotes an indicated data value but not a real voltage value. Therefore, just enter the data value as a setting value.

∗ To store the VFQ S03 command in memory, transmit it after displaying the mask.

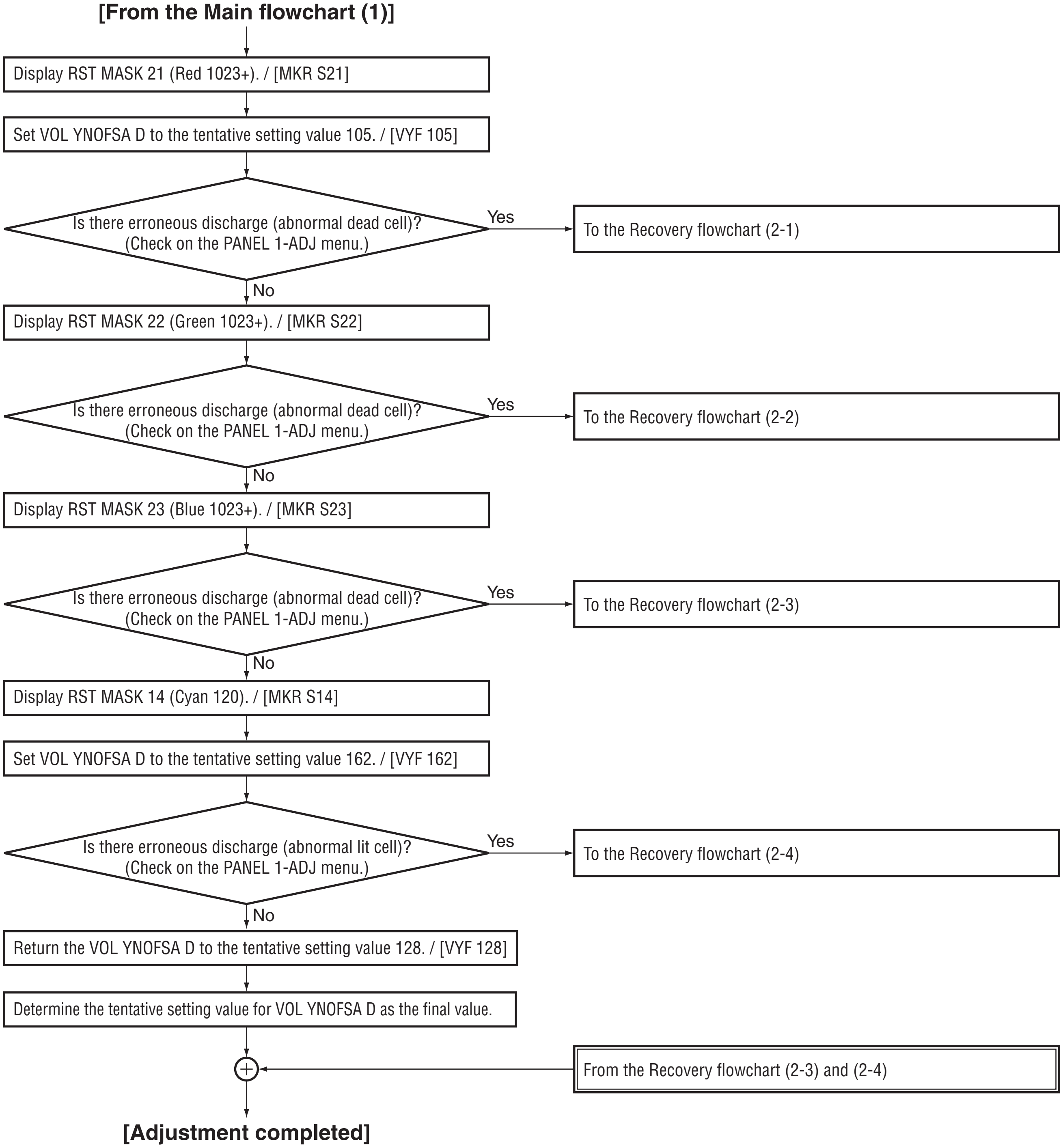
Note:
* When you perform the adjustment with RS232C commands, issue the following commands in addition.
* If the unit is shut down in the middle of performing the adjustment flowchart, reissuing of the command is required.

[PAV S00]	: To set panel drive mode to Factory
[VFQ S03]	: To set Drive Sequence to Video 60-Hz
[WBI S01]	: To temporarily reset the Panel WB adjustment value to default (WBI S00 cancels this setting.)
[PGR S00]	: To set the gamma R value to that for Factory mode
[PGG S00]	: To set the gamma G value to that for Factory mode
[PGB S00]	: To set the gamma B value to that for Factory mode
[DIZ S03]	: Dither ON, L dither ON, noise OFF.
[$1800000001]	: LUT mode ON

Main flowchart (1)...Checking VOL OFFSET


[From Preparation]
Display RST MASK 09 (Pink). / [MKR S09]
Set VOL OFFSET to the tentative setting value minus 50. / [VOF ∗∗∗]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-1)
No
Display RST MASK 18 (Red 626). / [MKR S18]
Set VOL OFFSET to the tentative setting value plus 56. / [VOF ∗∗∗]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-2)
No
Display RST MASK 19 (Green 626). / [MKR S19]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-3)
No
Display RST MASK 20 (Blue 626). / [MKR S20]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-4)
No
Return VOL OFFSET to the tentative setting value. / [VOF ∗∗∗]
Determine the tentative setting value for VOL OFFSET as the final value.
From the Recovery flowchart (1-1) and (1-4)
[To the Main flowchart (2)]

Main flowchart (2)...Checking VOL YNOFSA D

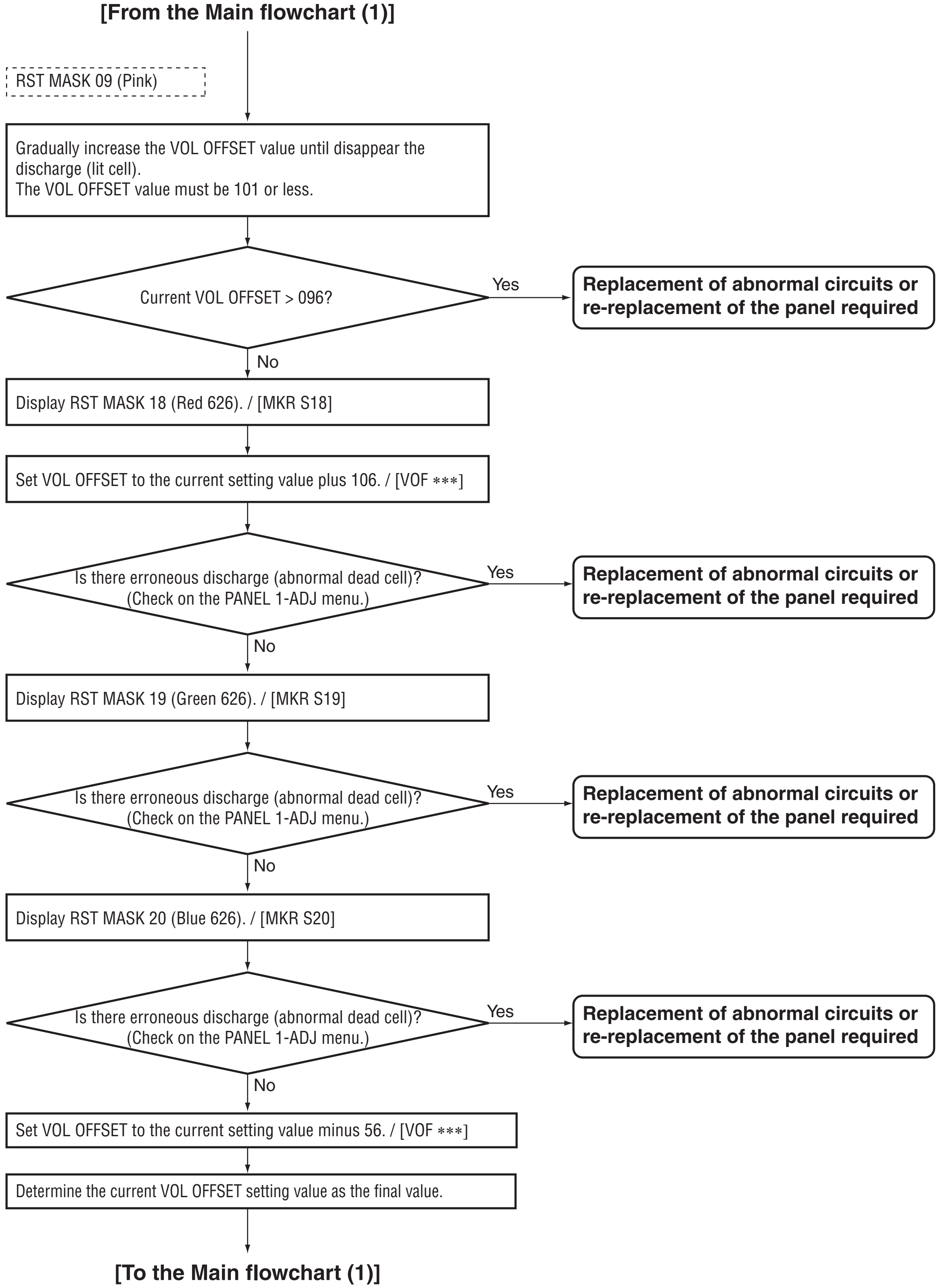

[From the Main flowchart (1)]
Display RST MASK 21 (Red 1023+). / [MKR S21]
Set VOL YNOFSA D to the tentative setting value 105. / [VYF 105]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-1)
No
Display RST MASK 22 (Green 1023+). / [MKR S22]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-2)
No
Display RST MASK 23 (Blue 1023+). / [MKR S23]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-3)
No
Display RST MASK 14 (Cyan 120). / [MKR S14]
Set VOL YNOFSA D to the tentative setting value 162. / [VYF 162]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-4)
No
Return the VOL YNOFSA D to the tentative setting value 128. / [VYF 128]
Determine the tentative setting value for VOL YNOFSA D as the final value.
From the Recovery flowchart (2-3) and (2-4)
[Adjustment completed]

Note:
Make sure that the following values become the final setting values.

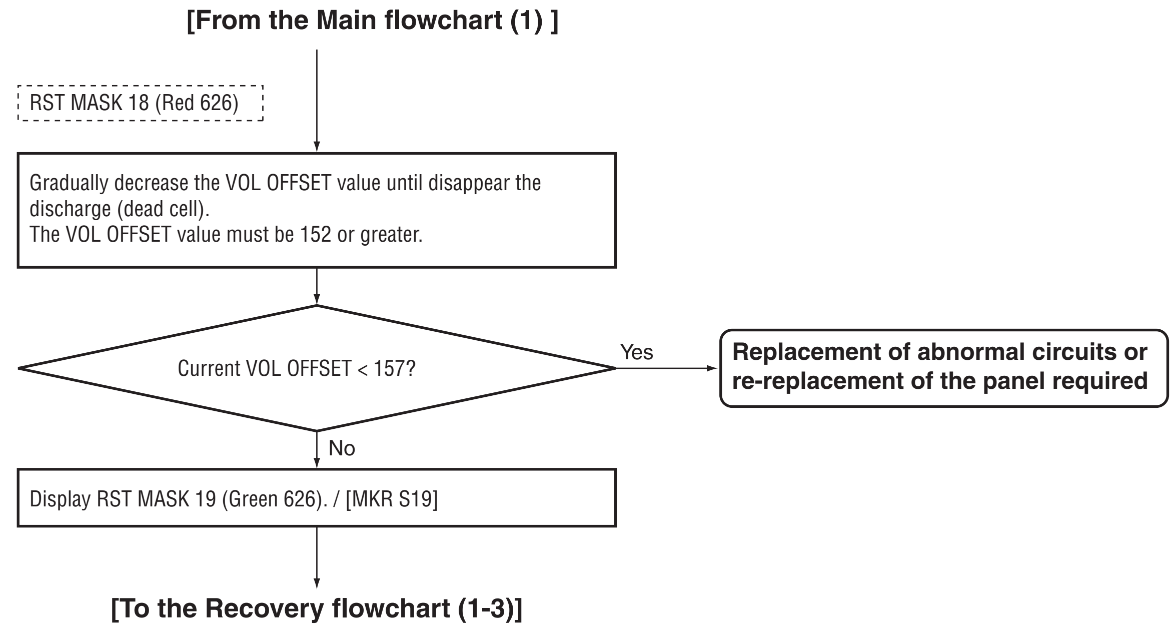
VOL SUS *1
VOL OFFSET
VOL RST P *1
VOL XPOFS1 *1
VOL XPOSF2 *1
VOL YNOFS1 D *1
VOL YNOFS3 D *1
VOL YNOFS4 D *1
VOL YNOFS4 A

*1: The tentative setting value becomes the final value.

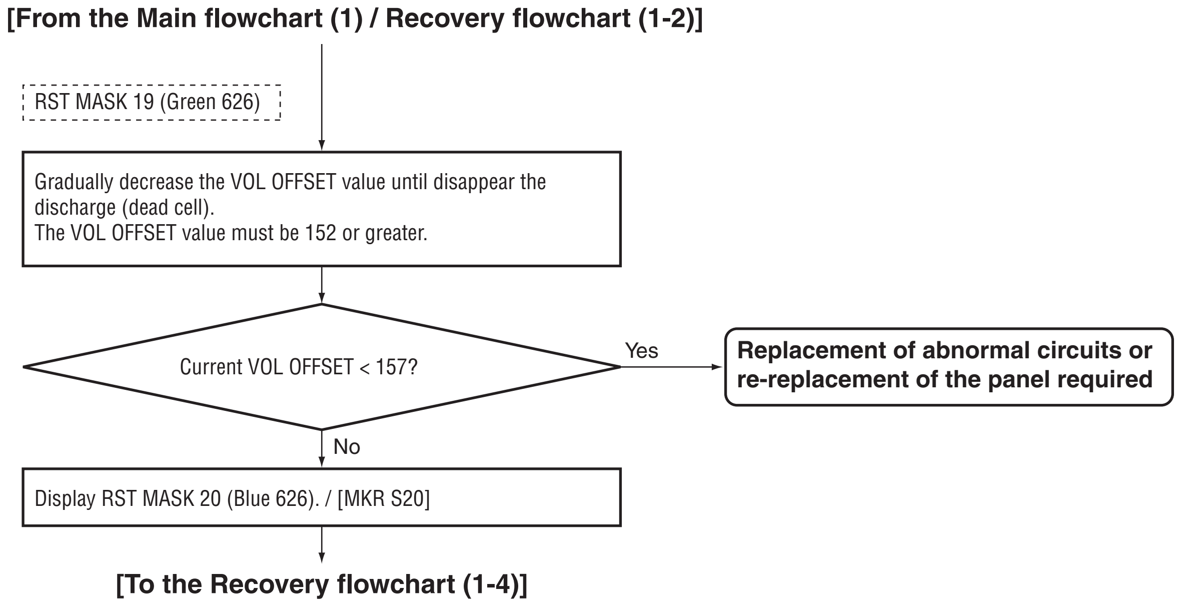
Recovery flowchart (1-1)...Changing the VOL OFFSET setting


[From the Main flowchart (1)]
RST MASK 09 (Pink)
Gradually increase the VOL OFFSET value until disappear the discharge (lit cell).
The VOL OFFSET value must be 101 or less.
Current VOL OFFSET > 096?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 18 (Red 626). / [MKR S18]
Set VOL OFFSET to the current setting value plus 106. / [VOF ***]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 19 (Green 626). / [MKR S19]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 20 (Blue 626). / [MKR S20]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Set VOL OFFSET to the current setting value minus 56. / [VOF ***]
Determine the current VOL OFFSET setting value as the final value.
[To the Main flowchart (1)]

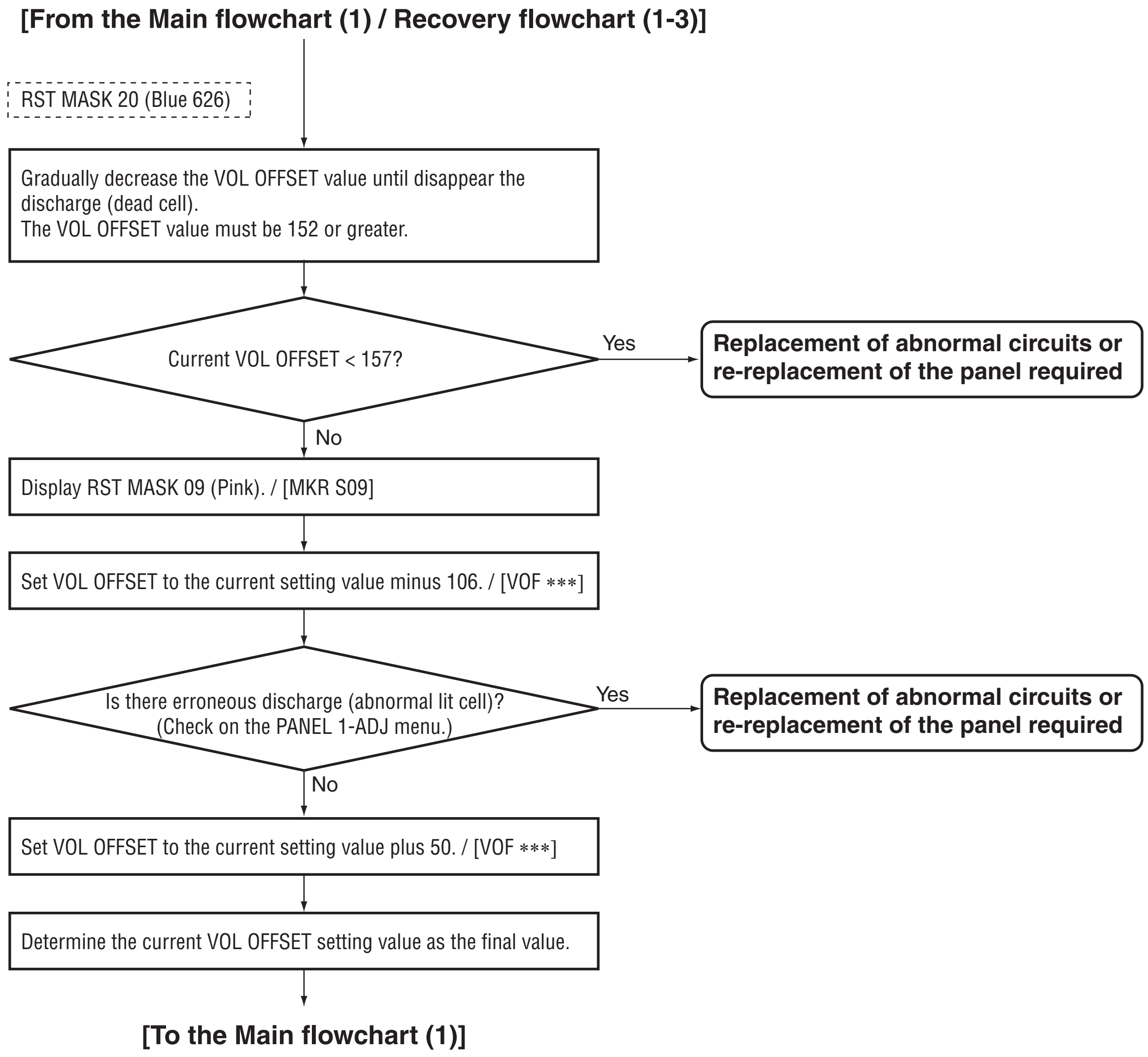
Recovery flowchart (1-2)...Changing the VOL OFFSET setting


[From the Main flowchart (1)]
RST MASK 18 (Red 626)
Gradually decrease the VOL OFFSET value until disappear the discharge (dead cell).
The VOL OFFSET value must be 152 or greater.
Current VOL OFFSET < 157?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 19 (Green 626). / [MKR S19]
[To the Recovery flowchart (1-3)]

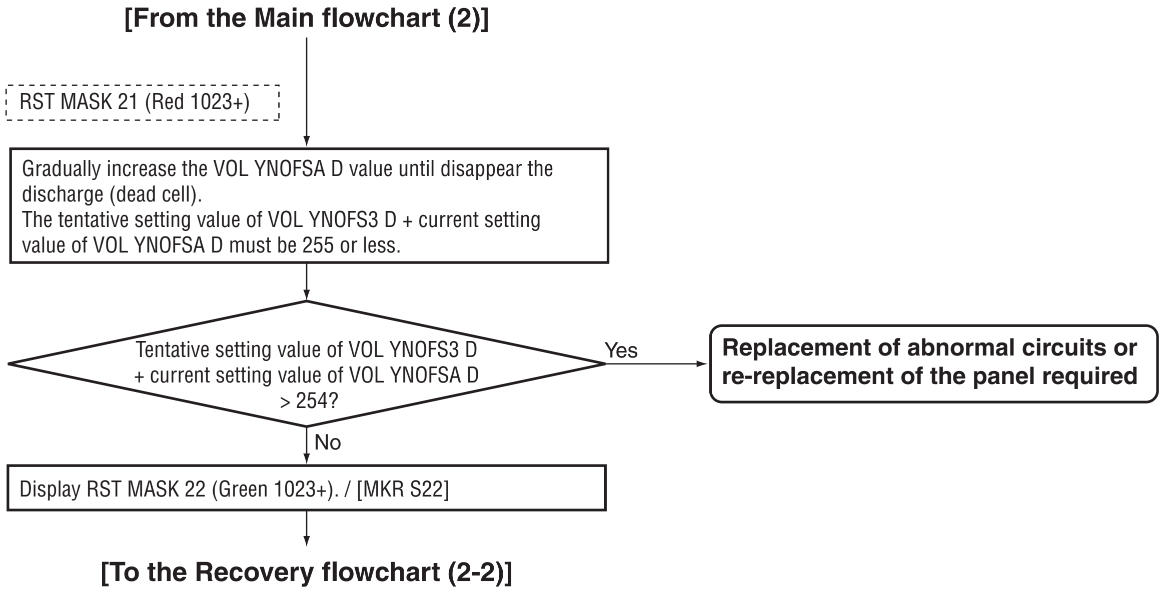
Recovery flowchart (1-3)...Changing the VOL OFFSET setting


[From the Main flowchart (1) / Recovery flowchart (1-2)]
RST MASK 19 (Green 626)
Gradually decrease the VOL OFFSET value until disappear the discharge (dead cell).
The VOL OFFSET value must be 152 or greater.
Current VOL OFFSET < 157?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 20 (Blue 626). / [MKR S20]
[To the Recovery flowchart (1-4)]

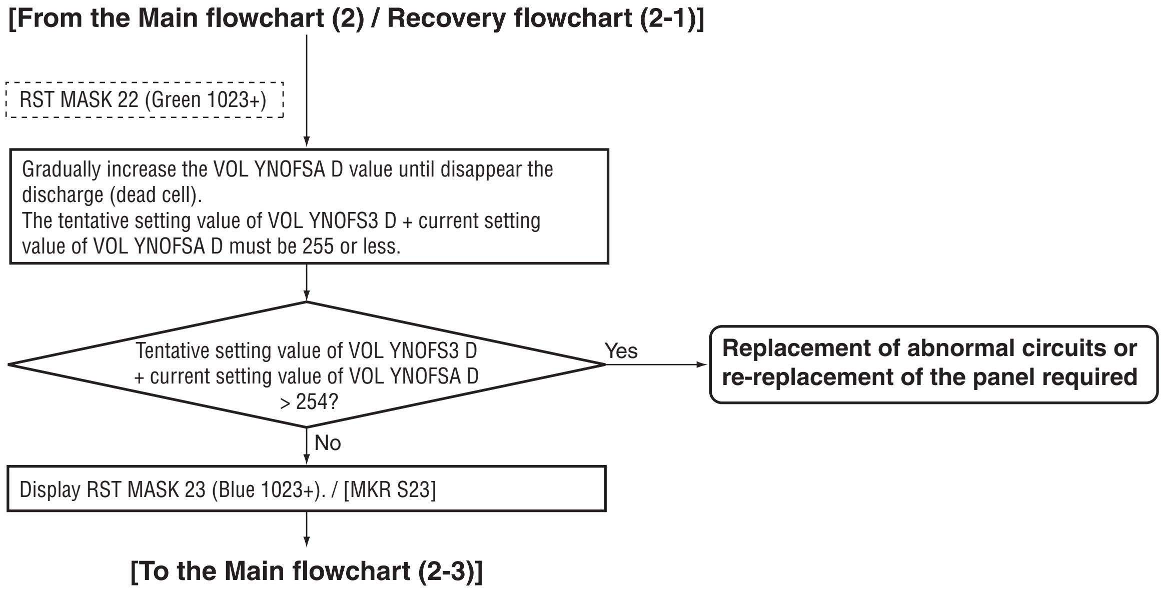
Recovery flowchart (1-4)...Changing the VOL OFFSET setting


[From the Main flowchart (1) / Recovery flowchart (1-3)]
RST MASK 20 (Blue 626)
Gradually decrease the VOL OFFSET value until disappear the discharge (dead cell).
The VOL OFFSET value must be 152 or greater.
Current VOL OFFSET < 157?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 09 (Pink). / [MKR S09]
Set VOL OFFSET to the current setting value minus 106. / [VOF ***]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Set VOL OFFSET to the current setting value plus 50. / [VOF ***]
Determine the current VOL OFFSET setting value as the final value.
[To the Main flowchart (1)]

Recovery flowchart (2-1)...Changing the VOL YNOFSA D setting

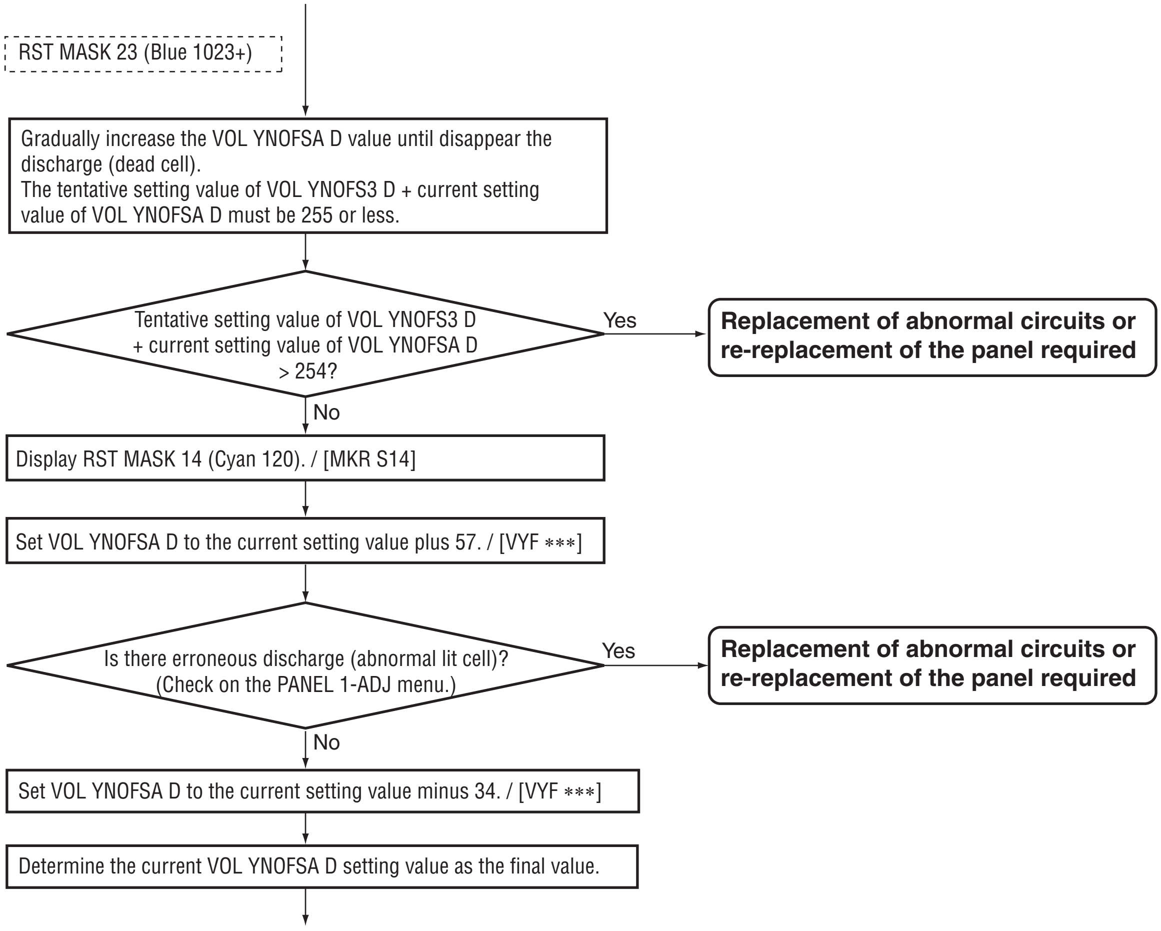

[From the Main flowchart (2)]
RST MASK 21 (Red 1023+)
Gradually increase the VOL YNOFSA D value until disappear the discharge (dead cell).
The tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D must be 255 or less.
Tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D > 254?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 22 (Green 1023+). / [MKR S22]
[To the Recovery flowchart (2-2)]

Recovery flowchart (2-2)...Changing the VOL YNOFSA D setting


[From the Main flowchart (2) / Recovery flowchart (2-1)]
RST MASK 22 (Green 1023+)
Gradually increase the VOL YNOFSA D value until disappear the discharge (dead cell).
The tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D must be 255 or less.
Tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D > 254?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 23 (Blue 1023+). / [MKR S23]
[To the Main flowchart (2-3)]

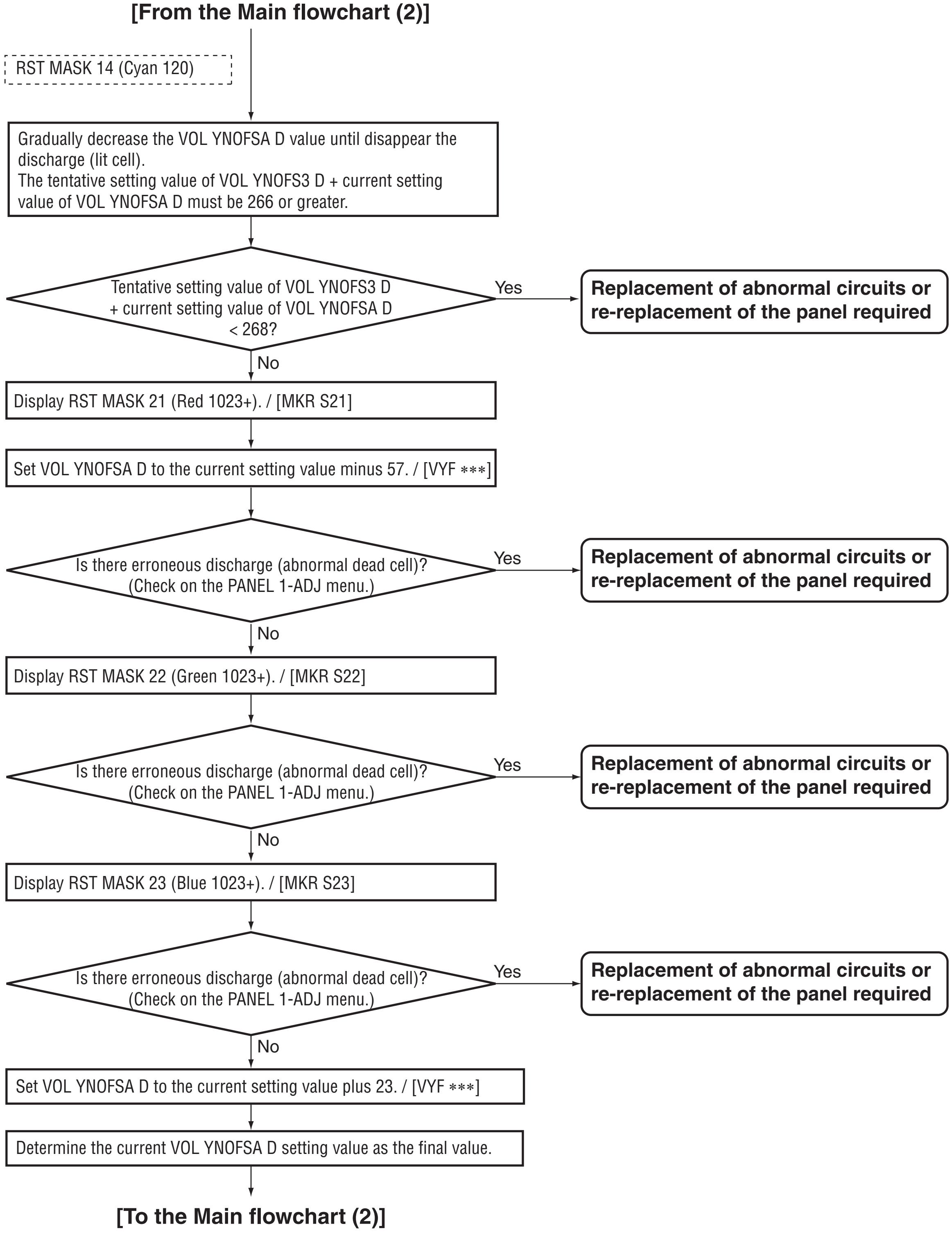
Recovery flowchart (2-3)...Changing the VOL YNOFSA D setting

[From the Main flowchart (2) / Recovery flowchart (2-2)]


RST MASK 23 (Blue 1023+)
Gradually increase the VOL YNOFSA D value until disappear the discharge (dead cell). The tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D must be 255 or less.
Tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D > 254?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 14 (Cyan 120). / [MKR S14]
Set VOL YNOFSA D to the current setting value plus 57. / [VYF ∗∗∗]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Set VOL YNOFSA D to the current setting value minus 34. / [VYF ∗∗∗]
Determine the current VOL YNOFSA D setting value as the final value.

[To the Main flowchart (2)]

Recovery flowchart (2-4)...Changing the VOL YNOFSA D setting



[From the Main flowchart (2)]

RST MASK 14 (Cyan 120)

Gradually decrease the VOL YNOFSA D value until disappear the discharge (lit cell).
The tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D must be 266 or greater.

Tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D < 268?

Yes → **Replacement of abnormal circuits or re-replacement of the panel required**

No ↓

Display RST MASK 21 (Red 1023+). / [MKR S21]

Set VOL YNOFSA D to the current setting value minus 57. / [VYF ∗∗∗]

Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)

Yes → **Replacement of abnormal circuits or re-replacement of the panel required**

No ↓

Display RST MASK 22 (Green 1023+). / [MKR S22]

Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)

Yes → **Replacement of abnormal circuits or re-replacement of the panel required**

No ↓

Display RST MASK 23 (Blue 1023+). / [MKR S23]

Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)

Yes → **Replacement of abnormal circuits or re-replacement of the panel required**

No ↓

Set VOL YNOFSA D to the current setting value plus 23. / [VYF ∗∗∗]

Determine the current VOL YNOFSA D setting value as the final value.

[To the Main flowchart (2)]

8.5 ADJUSTMENT WHEN THE DRIVE ASSYS ARE REPLACED

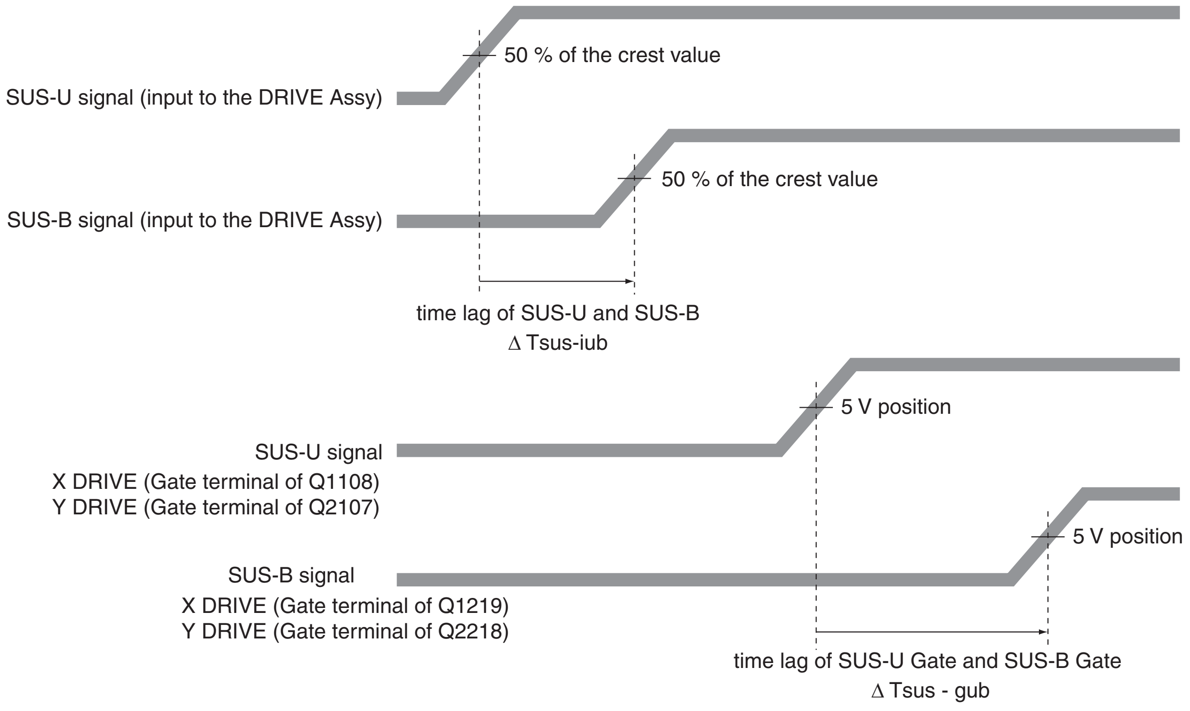
■ Waveform adjustments required when replacing the following parts of the X DRIVE and Y DRIVE Assys.

Assy Name	Ref No.	Part Name	Part Category	Remarks
X DRIVE Assy	IC1101	PS9818-1(P)	Photo Coupler	
	IC1104	TND307TD	FET Driver	
	IC1204	PS9818-2(P)	Photo Coupler	
	IC1209	TND307TD	FET Driver	
Y DRIVE Assy	IC2101	PS9818-1(P)	Photo Coupler	
	IC2103	TND307TD	FET Driver	
	IC2201	PS9818-1(P)	Photo Coupler	
	IC2203	TND307TD	FET Driver	

■ TIME LAG ADJUSTMENT OF THE CONTROL SIGNAL (SUS-B)

① Measure the time lag for the SUS-U signal to the SUS-B signal.
② Check the time lag for the SUS-B Gate signal to the SUS-U Gate siganl.
Adjust the variable control so that the time lag of Gate becomes " time lag of input signal + α ± 5 nsec."

Note: • Be sure to set the Drive to OFF for adjustment.
• For details on measuring points of waveform, see the figure below.


50 % of the crest value
SUS-U signal (input to the DRIVE Assy)
50 % of the crest value
SUS-B signal (input to the DRIVE Assy)
time lag of SUS-U and SUS-B
Δ Tsus-iub
5 V position
SUS-U signal
X DRIVE (Gate terminal of Q1108)
Y DRIVE (Gate terminal of Q2107)
5 V position
SUS-B signal
X DRIVE (Gate terminal of Q1219)
Y DRIVE (Gate terminal of Q2218)
time lag of SUS-U Gate and SUS-B Gate
Δ Tsus - gub

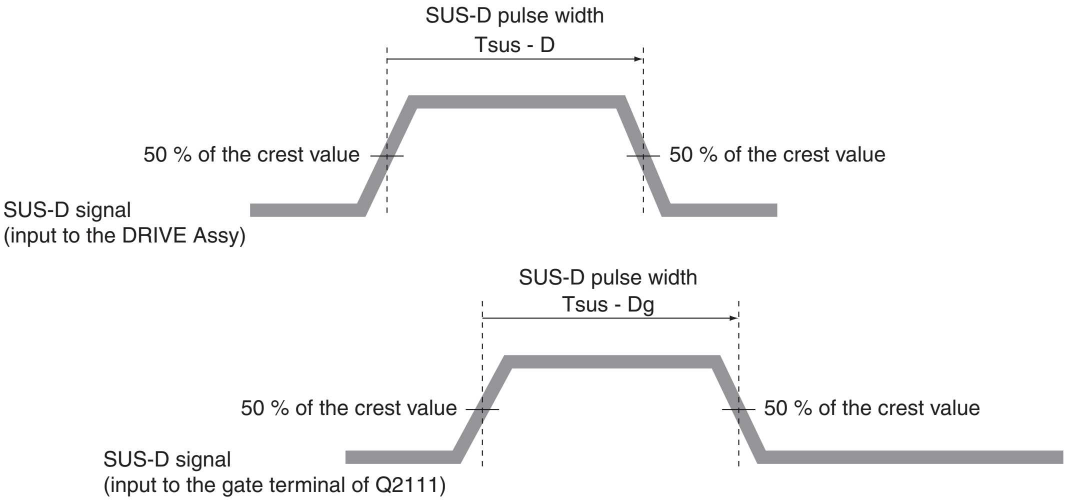
Time lag of SUS-U Gate and SUS-B Gate : Δ Tsus - gub
Adjust so that "Δ Tsus - gub = Δ Tsus - iub + α ± 5 nsec," using the variable controls shown in the table below:

Assy	VR	Value of α
X DRIVE Assy	VR1002	60 nsec
Y DRIVE Assy	VR2002	60 nsec

DELAY ADJUSTMENT OF THE CONTROL SIGNAL (SUS-D)

① Measure the pulse width of the SUS-D signal.
② Check the pulse width of the SUS-D input signal (gate terminal of Q2111).
Adjust the variable control so that the pulse width of the SUS-D input signal (gate terminal of Q2111) becomes the same pulse width ± 5 nsec as the SUS-D signal.

Note: • For details on measuring points of waveform, see the figure below.

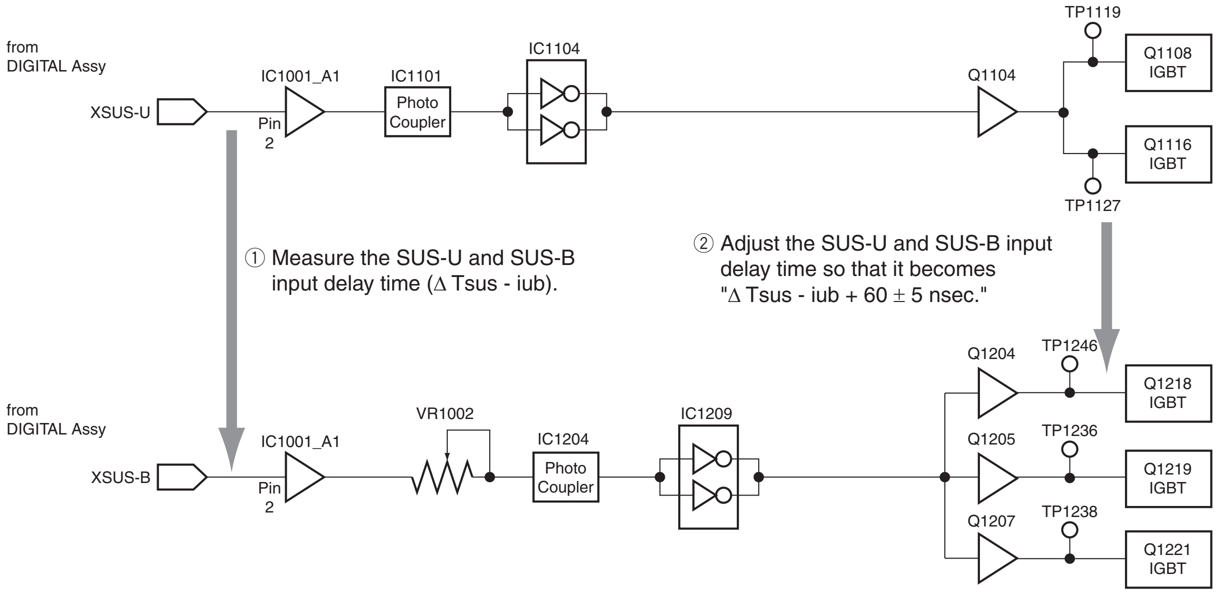

SUS-D pulse width
Tsus - D
50 % of the crest value
50 % of the crest value
SUS-D signal
(input to the DRIVE Assy)
SUS-D pulse width
Tsus - Dg
50 % of the crest value
50 % of the crest value
SUS-D signal
(input to the gate terminal of Q2111)

SUS-D pulse width: Tsus - Dg
Adjust so that "Tsus - Dg = Tsus - D ± 5 nsec," using the variable control shown in the table below:

Assy	VR
Y DRIVE Assy	VR2001

SUS-B ADJUSTMENT

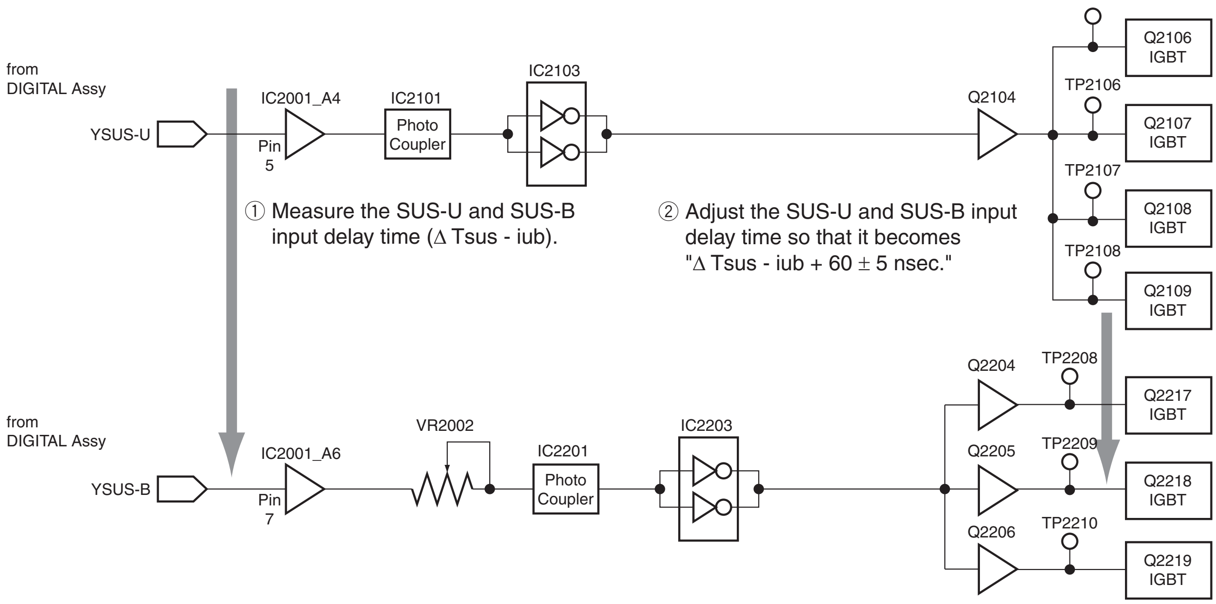
X DRIVE Assy


from
DIGITAL Assy
XSUS-U
IC1001_A1
Pin
2
IC1101
Photo
Coupler
IC1104
Q1104
TP1119
Q1108
IGBT
Q1116
IGBT
TP1127
from
DIGITAL Assy
XSUS-B
IC1001_A1
Pin
2
VR1002
IC1204
Photo
Coupler
IC1209
Q1204
TP1246
Q1218
IGBT
Q1205
TP1236
Q1219
IGBT
Q1207
TP1238
Q1221
IGBT

① Measure the SUS-U and SUS-B input delay time (∆ Tsus - iub).

② Adjust the SUS-U and SUS-B input delay time so that it becomes "∆ Tsus - iub + 60 ± 5 nsec."

Y DRIVE Assy

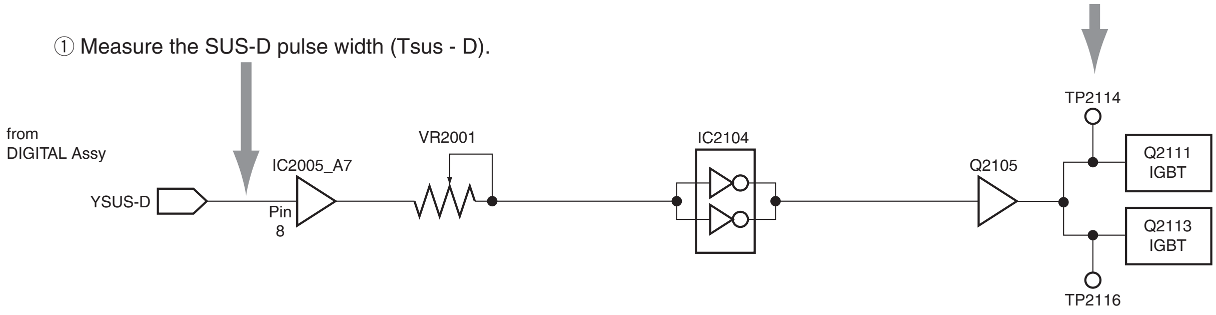

TP2105
Q2106
IGBT
from
DIGITAL Assy
YSUS-U
IC2001_A4
Pin
5
IC2101
Photo
Coupler
IC2103
Q2104
TP2106
Q2107
IGBT
TP2107
Q2108
IGBT
TP2108
Q2109
IGBT
Q2204
TP2208
Q2217
IGBT
from
DIGITAL Assy
YSUS-B
IC2001_A6
Pin
7
VR2002
IC2201
Photo
Coupler
IC2203
Q2205
TP2209
Q2218
IGBT
Q2206
TP2210
Q2219
IGBT

① Measure the SUS-U and SUS-B input delay time (∆ Tsus - iub).

② Adjust the SUS-U and SUS-B input delay time so that it becomes "∆ Tsus - iub + 60 ± 5 nsec."

SUS-D ADJUSTMENT

Y DRIVE Assy


from
DIGITAL Assy
YSUS-D
IC2005_A7
Pin
8
VR2001
IC2104
Q2105
TP2114
Q2111
IGBT
Q2113
IGBT
TP2116

② Adjust the pulse width (Tsus - Dg) of the SUS-D input signal so that it becomes "Tsus-D ± 5 nsec."

① Measure the SUS-D pulse width (Tsus - D).

8.6 ADJUSTMENT WHEN THE MAIN OR IO_AUDIO ASSY IS REPLACED

■ Explanation

To correct differences in IC output levels and signal levels upon AD conversion, adjustment is performed throughout the path. Therefore, if any of the following devices is replaced, the entire adjustment must be performed again.

IC8001	AV_SW	R2S11006FT
IC8101	RGB_SW	R2S11001FT
IC4702	VDEC	CM0048AF
IC4801	ADC	AD9985KSTZ-110

■ Adjustment Procedure

Perform the "AUTO ADJUSTMENT" on the "6.2 [4] INITIALIZE".

8.7 HOW TO UPDATE USB

Preparation

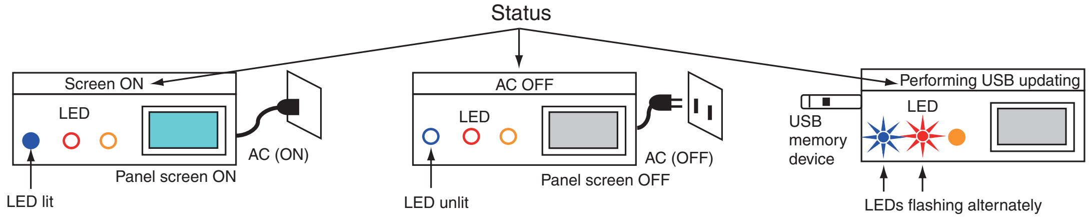
Expand the image-file folder for USB updating in the root directory of the USB memory device.

Example: Folder construction after expansion in the root directory of the USB memory device

(With the nonencrypted folder)	[update] ├ boot.img ├ update.ctl ├ update.iso └ update.lst
(With the encrypted folder)	[update] ├ boot.img ├ update.ctl ├ update.enc ├ update.key └ update.lst

An encrypted image-file folder for USB updating will be released for general users.

Description of the figures

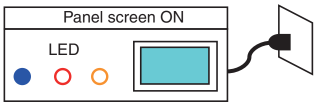

Status
Screen ON
LED
AC (ON)
Panel screen ON
LED lit
AC OFF
LED
AC (OFF)
Panel screen OFF
LED unlit
Performing USB updating
LED
USB memory device
LEDs flashing alternately

Procedures

1. Setting before USB updating

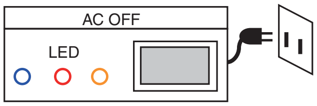
Change the power status of the Panel from Screen ON to AC OFF.

①


Panel screen ON
LED

Unplug the AC power cord.

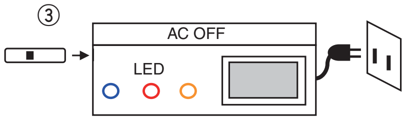
②



2. Performing USB updating

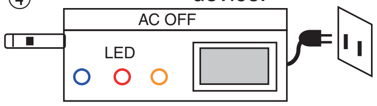
Connect the USB memory device then set the unit to AC ON.

③

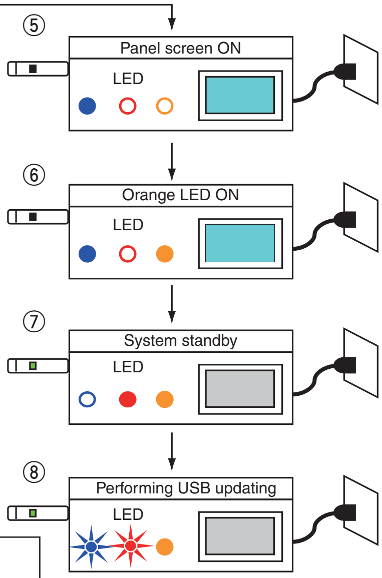


Connect the USB memory device.

④



Plug in the AC power cord.


⑤
Panel screen ON
LED
⑥
Orange LED ON
LED
⑦
System standby
LED
⑧
Performing USB updating
LED

Note:
If you interrupt the updating procedure in this step, updating is not started, and normal startup will begin.

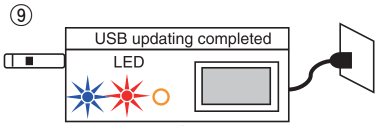
NEVER use the remote control unit.
(Especially DO NOT use the Power key.)

If you use any key on the remote control unit in Steps 5 and 7:
If the unit does not shift to Step 8, disconnect the USB memory device then try the procedures from the beginning.
If the unit shifts to Step 8, continue the updating procedures as described.

3. Completion procedures for USB updating

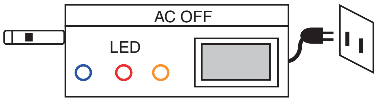
After USB updating is completed, perform the following steps (unplug the AC power cord, disconnect the USB memory device, then plug the AC power cord back in).

⑨



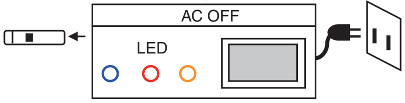
Unplug the AC power cord.

⑩



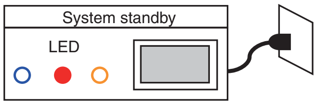
Disconnect the USB memory device.

⑪



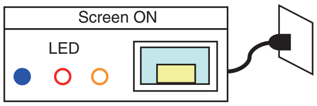
Plug in the AC power cord.

⑫



Turn the unit on, using the Power key on the remote control unit

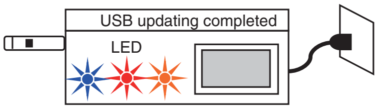
⑬



The GUI indicating that updating is completed is displayed.

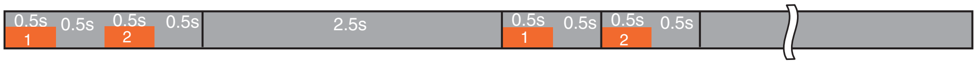
List of frequency of LED flashing (orange) when updating fails

If updating is interrupted, the orange LED flashes to warn you of the error.



Frequency of Orange LED Flashing	Error Content	Details
1	(Not used)	
2	Version error	The same version or a newer version of software has already been loaded.
3	USB update startup error	Startup of USB updating failed.
4	DTV update error	Updating of the DTV software failed.
5	Main download error	Updating of the MAIN microcomputer software failed.
6	ARIA download error	Updating of the ASIC software in the previous stage failed.
7	ZEUS download error	Updating of the ASIC software in the later stage failed.
8	Module download error	Updating of the module microcomputer software failed.
9	IF download error	Updating of the IF microcomputer software failed.
10	USB disconnection	Abnormality in the USB memory device
11 to 13	Reserved	-
14	Destination error	The software for a different destination (Europe/North America/Australia) was used for updating.

Example: In a case where the orange LED flashes twice (version error)
Repetition of 1-sec flashing twice followed by a 2.5-sec pause (OFF)



Under the following conditions, USB updating procedures will be interrupted at Step ⑤ above, and normal startup will begin, but the LED does not flash for error indication.

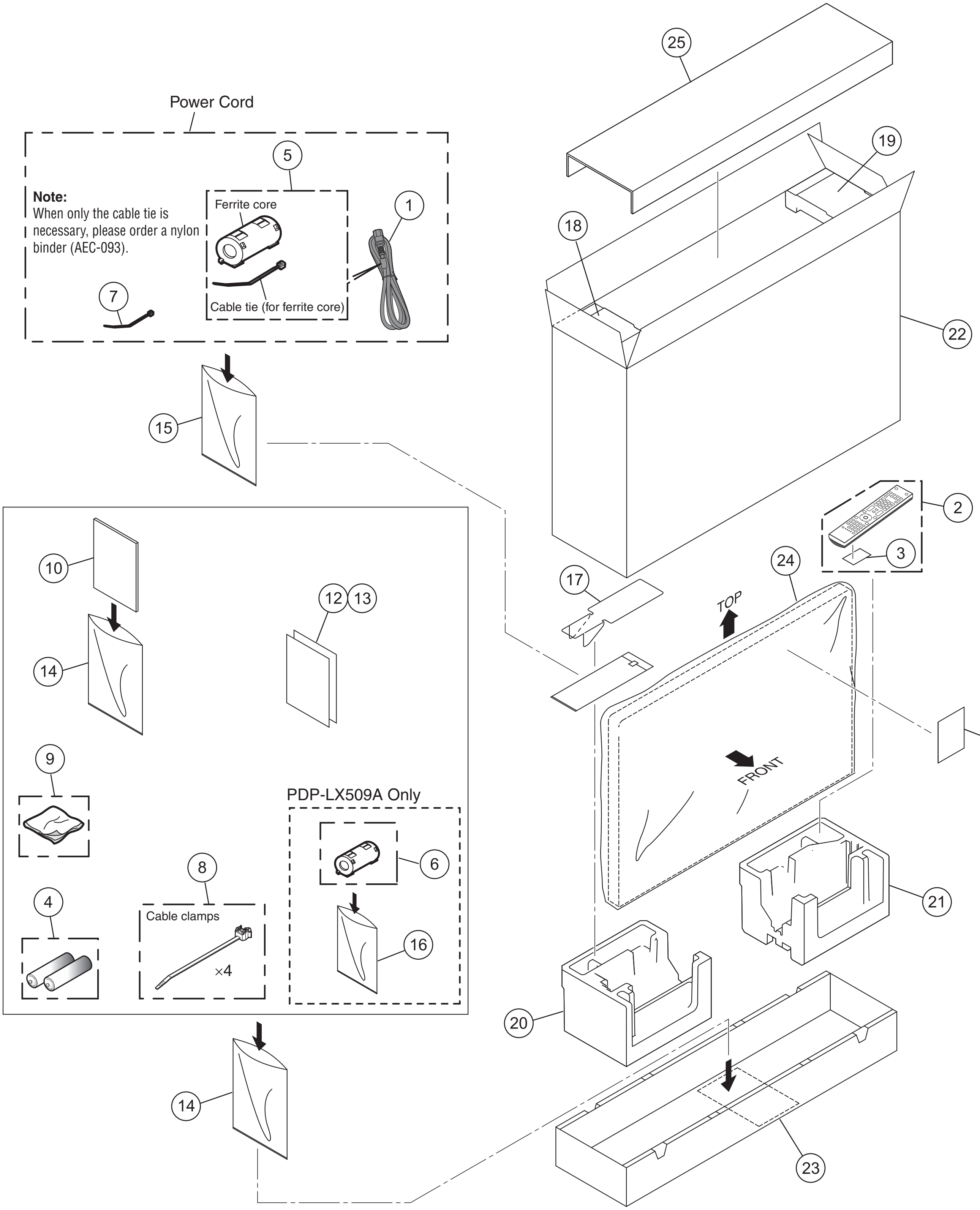
Conditions under which the LED will not flash for error indication

- Any USB updating file is damaged
- Not all USB updating files are stored in the USB memory device
- The USB updating files are modified
- The USB memory device is defective

9. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

9.1 PACKING SECTION


25
Power Cord
19
5
1
18
Ferrite core
7
Cable tie (for ferrite core)
22
15
2
3
10
24
17
12
13
TOP
14
11
9
FRONT
PDP-LX509A Only
6
8
4
Cable clamps
×4
16
21
20
14
23

Note:
When only the cable tie is necessary, please order a nylon binder (AEC-093).

(1) PACKING SECTION PARTS LIST

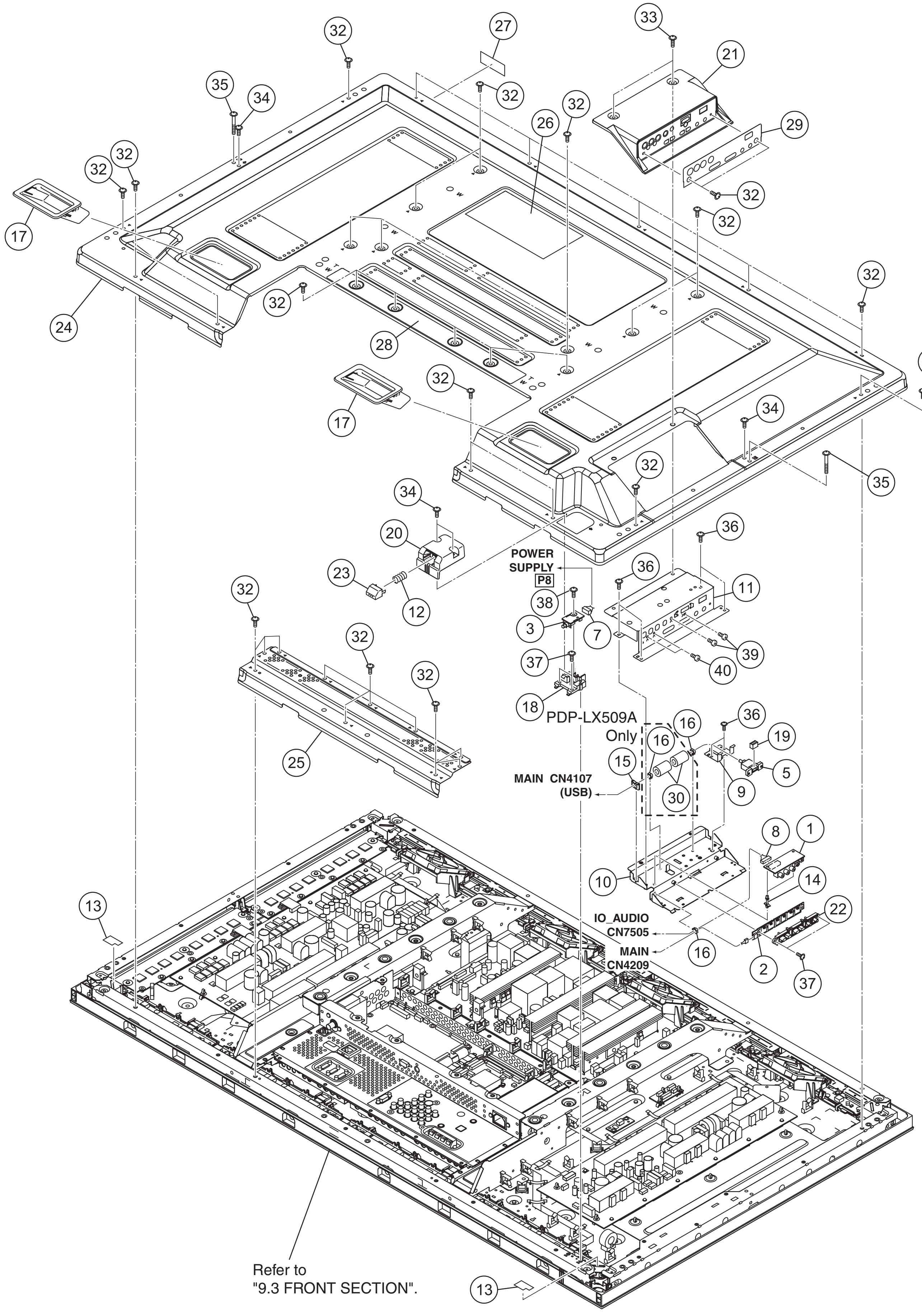
Mark	No.	Description	Part No.
⚠ NSP	1	Power Cord	ADG1245
	2	Remote Control Unit	See Contrast table (2)
	3	Battery Cover (Black)	AZN2784
NSP	4	Dry Cell Battery (R6, AA)	VEM1031
⚠	5	Ferrite Core	ATX1039
⚠	6	Ferrite Core	See Contrast table (2)
	7	Nylon Binder	AEC-093
	8	Binder Assy	AEC2158
	9	Cleaning Cloth	AED1285
	10	Operating Instructions (English)	ARB1580
	11	Caution Card	ARM1232
	12	Cleaning Caution (11L)	ARM1283
NSP	13	Warranty Card (AUS)	ARY1217
NSP	14	Vinyl Bag	AHG1340
	15	Vinyl Bag	AHG1336
	16	Vinyl Bag	See Contrast table (2)
	17	Power Cord Lid (5090)	AHC1114
	18	Pad (509 T-L EU)	AHA2727
	19	Pad (509 T-R EU)	AHA2728
	20	Pad (509 B-L EU)	AHA2729
	21	Pad (509 B-R EU)	AHA2730
	22	Upper Carton	See Contrast table (2)
	23	Under Carton (5090)	AHD3673
	24	Mirror Mat	AHG1284
	25	Carton Board (509)	AHB1303

(2) CONTRAST TABLE

PDP-LX509A/YP and PDP-C509A/YP are constructed the same except for the following:

Mark	No.	Symbol and Description	PDP-LX509A /YP	PDP-C509A /YP
	2	Remote Control Unit	AXD1568	AXD1574
⚠	6	Ferrite Core	CTX1089	Not used
	16	Vinyl Bag	AHG1337	Not used
	22	Upper Carton (509A)	AHD3699	Not used
	22	Upper Carton (C509A)	Not used	AHD3727

9.2 REAR SECTION


32
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26
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32
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28
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17
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20
36
POWER SUPPLY P8
36
23
12
32
38
11
3
7
32
39
37
40
32
18
36
PDP-LX509A Only
16
16
19
25
15
5
MAIN CN4107 (USB)
9
30
8
1
10
14
13
22
IO_AUDIO CN7505
16
MAIN CN4209
2
37
13

Refer to
"9.3 FRONT SECTION".

(1) REAR SECTION PARTS LIST

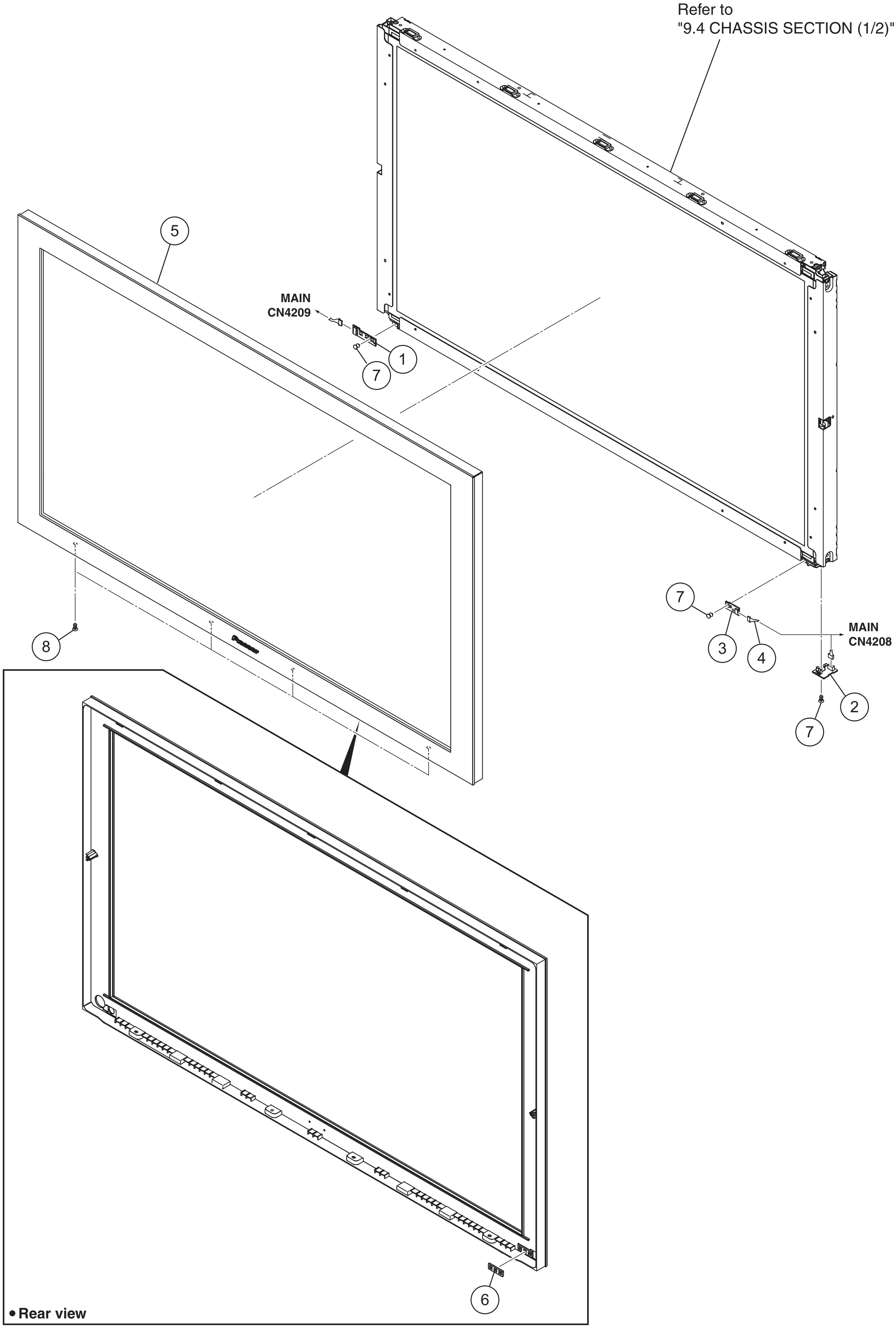
Mark	No.	Description	Part No.
	1	SIDE IO Assy	AWW1356
	2	SIDE KEY Assy	AWW1361
	3	POWER SW Assy	AWW1366
	4	• • • • •	
	5	USB Cable (J301)(120 cm)	ADF1034
	6	• • • • •	
	7	3P Housing Wire (J103)	ADX3630
	8	11P Housing Wire (J118)	ADX3644
	9	USB Holder	ANG3134
	10	Side Input Base	ANG3215
	11	Side Input Shield	ANG3216
	12	Coil Spring	ABH1125
	13	Sensor Cushion B (428)	AEB1486
NSP	14	PCB Spacer	AEC1084
	15	Edge Saddle	AEC1571
	16	Mini Clamp	AEC1971
	17	Inner Grip Assy	AMR3434
	18	Power Button Support	AMR3763
⚠	19	USB Gasket	ANK1962
	20	Power Button Case	AAK2927
	21	Side Input Cover	AMR3754
	22	Operation Button	AAC1569
	23	Power Button (508F)	AAD4152
	24	Rear Case (509)	ANE1671
	25	Under Cover (509)	ANE1672
NSP	26	Name Label	See Contrast table (2)
	27	Serial Sheet	AAX3143
	28	Label A (AU)	AAX3570
	29	Side Label	See Contrast table (2)
⚠	30	Ferrite Core (F14, F15)	See Contrast table (2)
	31	• • • • •	
	32	Screw (M3 x 6)	ABA1377
	33	Screw (M3 x 10)	ABA1378
	34	Screw (3 x 8 P)	ABA1379
	35	Screw (3 x 25 P)	ABA1380
	36	Screw	AMZ30P060FTB
	37	Screw	AMZ30P080FTB
	38	Screw	APZ30P080FTB
	39	Screw	BMZ30P080FTB
	40	Screw	BPZ30P080FTB

(2) CONTRAST TABLE

PDP-LX509A/YP and PDP-C509A/YP are constructed the same except for the following:

Mark	No.	Symbol and Description	PDP-LX509A /YP	PDP-C509A /YP
NSP	26	Name Label (509A)	AAL3036	Not used
NSP	26	Name Label (C509A)	Not used	AAL3081
	29	Side Label (AU)	AAK2935	Not used
	29	Side Label (C509A)	Not used	AAK2967
⚠	30	Ferrite Core (F14, F15)	ATX1069	Not used

9.3 FRONT SECTION



Refer to
"9.4 CHASSIS SECTION (1/2)".

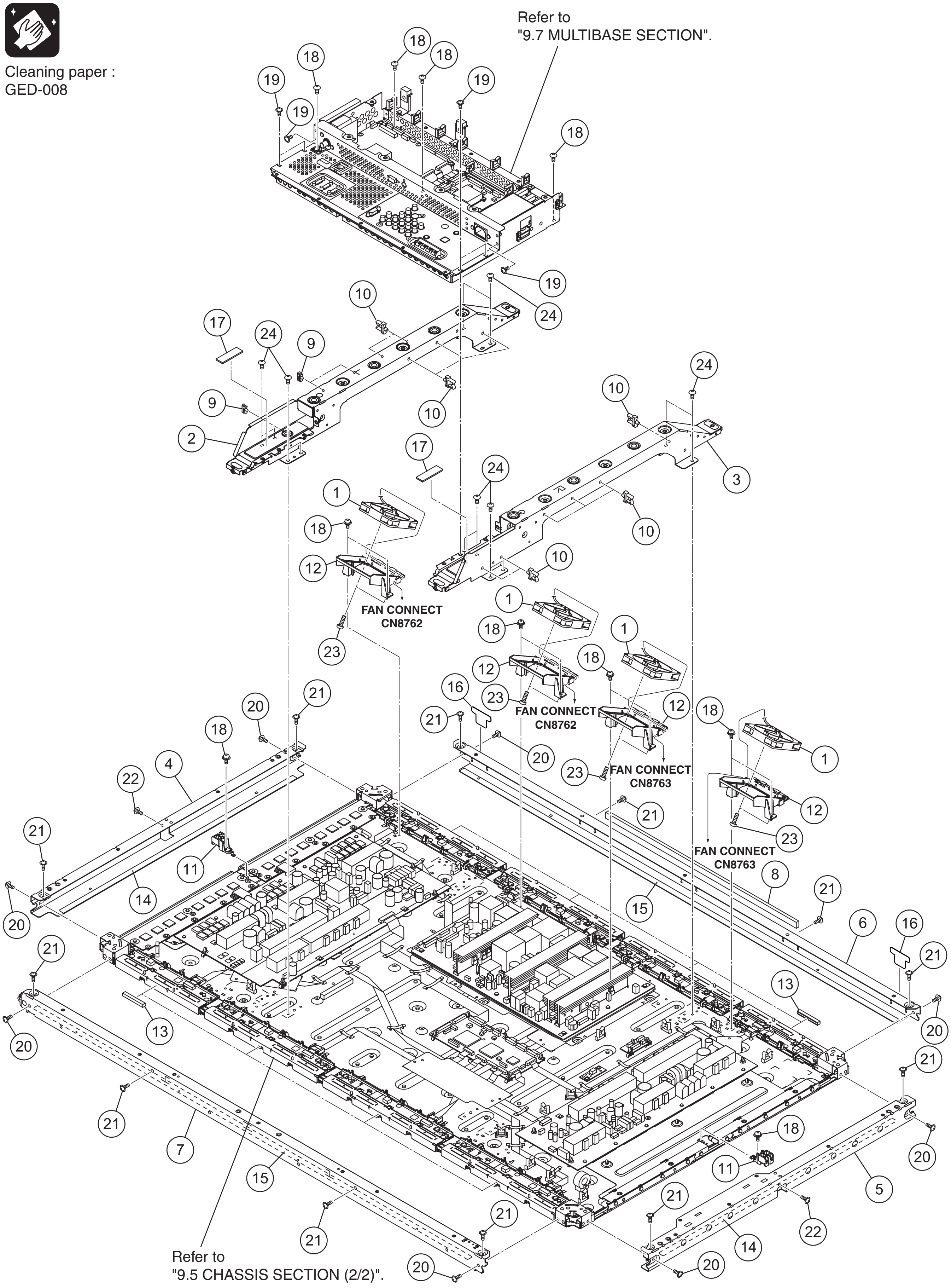
5
MAIN
CN4209
1
7
7
3
4
MAIN
CN4208
2
7
8
6
● Rear view

FRONT SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	LED Assy	AWW1362
	2	IR Assy	AWW1363
	3	RLS Assy	AWW1365
	4	7/3/3P Housing Wire (J117)	ADX3643
	5	Front Bezel (509TVA)	AMB3090
	6	Blind Cushion (508F)	AEB1479
	7	Nylon Rivet	AEC1671
	8	Rivet (Plastic)	AEC1877

9.4 CHASSIS SECTION (1/2)

Cleaning paper :
GED-008



Refer to
"9.7 MULTIBASE SECTION".

Refer to
"9.5 CHASSIS SECTION (2/2)".

18
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24
10
3
17
24
1
18
10
12
10
FAN CONNECT
CN8762
23
1
18
1
18
12
23
12
16
21
20
21
FAN CONNECT
CN8762
18
18
4
20
22
23
FAN CONNECT
CN8763
1
12
21
23
FAN CONNECT
CN8763
11
8
21
14
15
6
16
20
21
21
13
13
20
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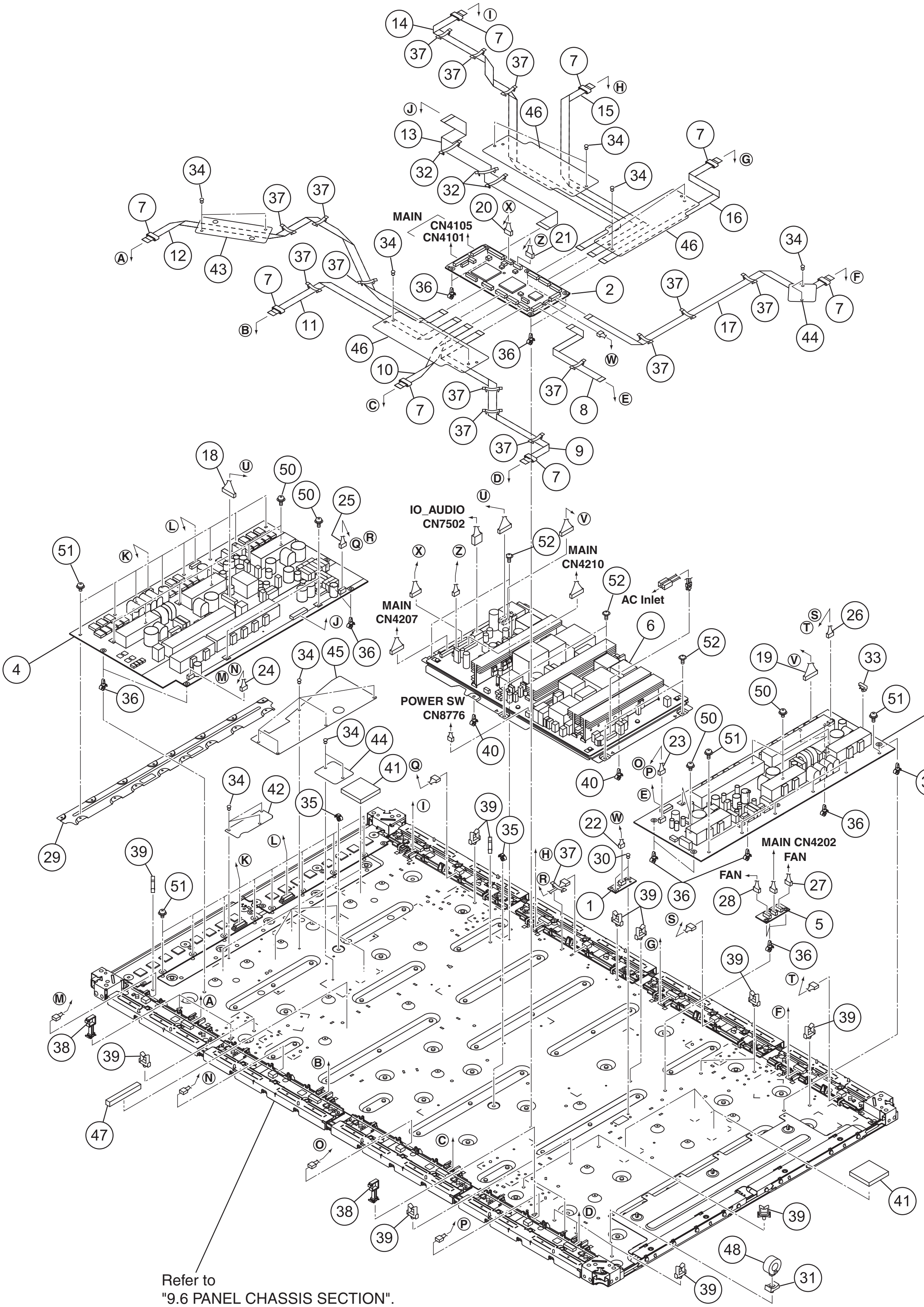
CHASSIS SECTION (1/2) PARTS LIST

Mark	No.	Description	Part No.
⚠	1	DC FAN Motor 80 x 15L	AXM1065
	2	Sub Frame L Assy (50)	ANA2137
	3	Sub Frame R Assy (50)	ANA2140
⚠	4	F. Chassis VL Assy 50	ANA2142
⚠	5	F. Chassis VR Assy 50	ANA2151
⚠	6	F. Chassis HT Assy 50	ANA2144
⚠	7	F. Chassis HB 50	ANA2188
	8	Waterproof Cushion	AEB1495
	9	Wire Clip	AEC1948
	10	Reuse Wire Saddle	AEC2134
	11	Support Bracket	AMR3762
	12	FAN Bracket 80	AMR3787
⚠	13	Gasket ADH-FCH	ANK1850
⚠	14	Front Gasket V50	ANK1963
⚠	15	Front Gasket H50	ANK1964
	16	FC Gate Sheet	AMR3906
	17	Stand Cushion	AED1340
	18	Screw	ABA1351
	19	Screw (M3 x 6)	ABA1377
	20	Screw	ABZ30P080FTC
	21	Screw	AMZ30P060FTB
	22	Screw	APZ30P080FTB
	23	Screw	PPZ50P100FTB
	24	Screw	TBZ40P060FTC

9.5 CHASSIS SECTION (2/2)

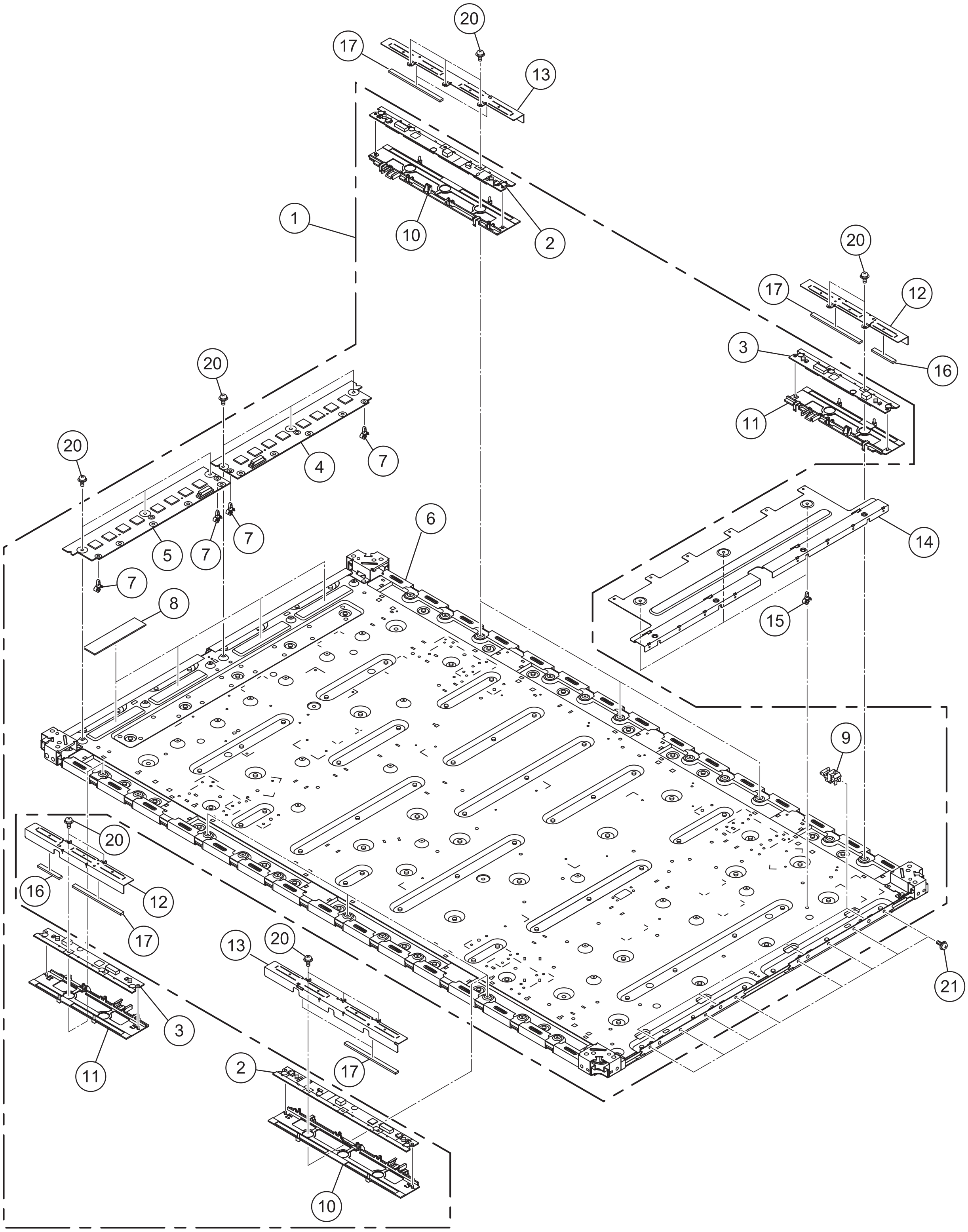

MAIN
CN4105
CN4101
IO_AUDIO
CN7502
MAIN
CN4210
AC Inlet
MAIN
CN4207
POWER SW
CN8776
MAIN CN4202
FAN
FAN

Refer to
"9.6 PANEL CHASSIS SECTION".

CHASSIS SECTION (2/2) PARTS LIST

Mark	No.	Description	Part No.
	1	SENSOR Assy	AWW1340
	2	50F DIGITAL Assy	AWW1347
	3	50F X DRIVE Assy	AWV2546
	4	50F Y DRIVE Assy	AWV2547
	5	FAN CONNECT Assy	AWW1364
⚠	6	POWER SUPPLY Unit	AXY1200
⚠	7	Ferrite Core (F1 - F8)	ATX1072
	8	Flexible Cable (J201)	ADD1540
	9	Flexible Cable (J202)	ADD1541
	10	Flexible Cable (J203)	ADD1542
	11	Flexible Cable (J204)	ADD1543
	12	Flexible Cable (J205)	ADD1544
	13	Flexible Cable (J206)	ADD1545
	14	Flexible Cable (J207)	ADD1546
	15	Flexible Cable (J208)	ADD1547
	16	Flexible Cable (J209)	ADD1548
	17	Flexible Cable (J210)	ADD1549
	18	12P/11P Housing Wire (J101)	ADX3628
	19	11P Housing Wire (J102)	ADX3629
	20	10P Housing Wire (J106)	ADX3632
	21	6P Housing Wire (J107)	ADX3633
	22	5P Housing Wire (J108)	ADX3634
	23	5/3/3P Housing Wire (J112)	ADX3638
	24	5/3/3P Housing Wire (J113)	ADX3639
	25	5/3/3P Housing Wire (J114)	ADX3640
	26	5/3/3P Housing Wire (J115)	ADX3641
	27	6/3/3P Housing Wire (J120)	ADX3646
	28	7/3/3P Housing Wire (J121)	ADX3647
	29	Plate Y (509)	ANG3127
	30	Nylon Rivet	AEC1671
	31	Ferrite Core Holder	AEC1818
	32	Flat Clamp	AEC1879
	33	Wire Clip	AEC1948
	34	Nylon Rivet	AEC2089
	35	Reuse Card Spacer	AEC2117
	36	PCB Spacer (Reuse)	AEC2122
	37	Flat Clamp	AEC2132
	38	Reuse Fastener	AEC2133
	39	Reuse Wire Saddle	AEC2134
	40	Reuse PCB Spacer 4.5	AEC2148
	41	Drive Sheet	AEH1155
	42	Y Drive Sheet B	AMR3769
	43	Y Drive Sheet C	AMR3783
	44	FAN Sheet	AMR3786
	45	Y Drive Sheet A (M)	AMR3881
	46	FFC Sheet	AMR3893
⚠	47	Gasket (10 x 10 x 80)	ANK1974
⚠	48	Ferrite Core (L1)	ATX1044
	49	• • • • •	
	50	Screw	ABA1351
	51	Screw	ABA1364
	52	Screw	ABZ30P060FTB

9.6 PANEL CHASSIS SECTION


20
17
13
1
10
2
20
17
12
3
16
11
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4
7
7
5
7
7
6
14
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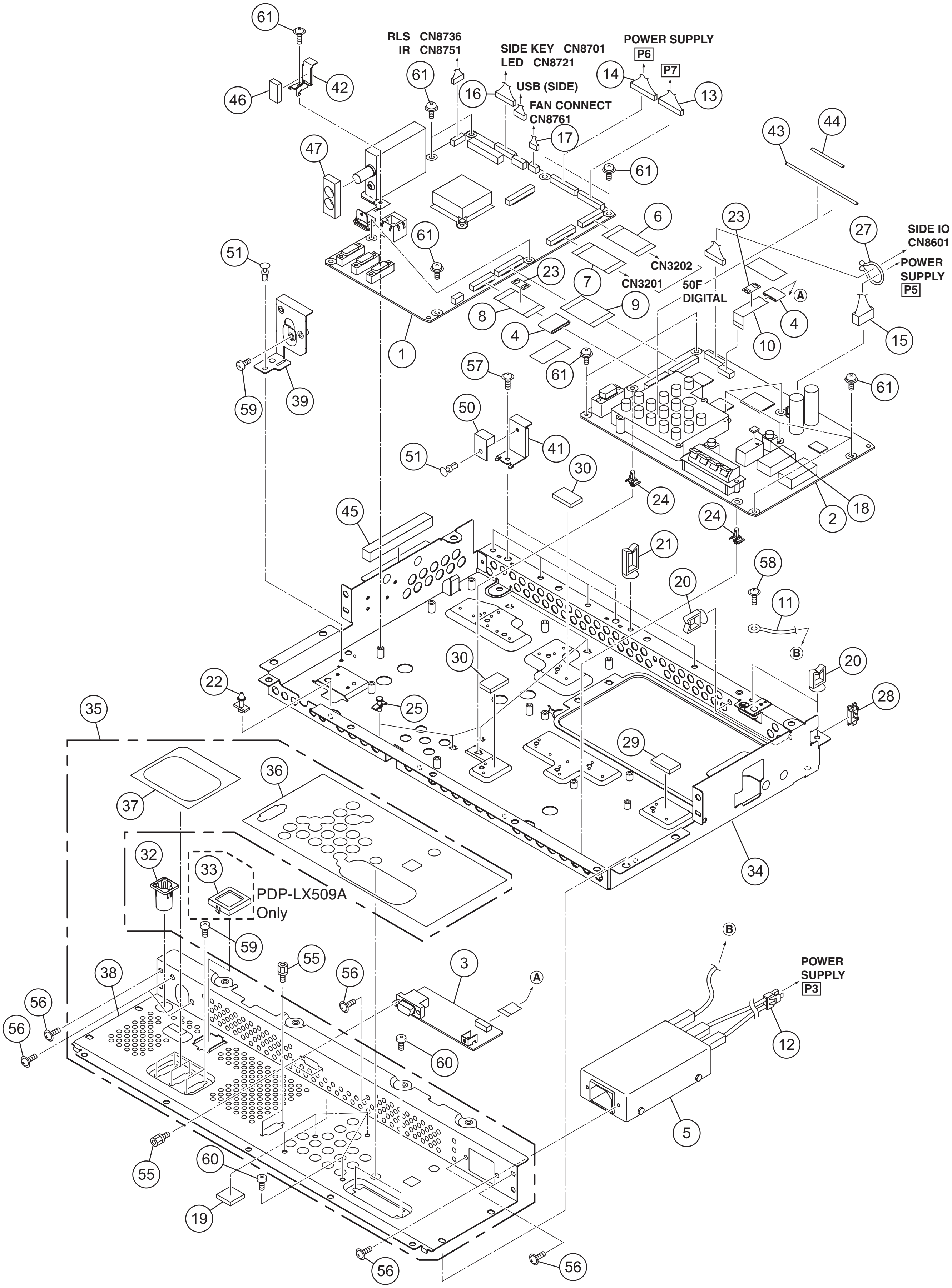
21
3
11
2
17
10

PANEL CHASSIS SECTION PARTS LIST

Mark	No.	Description	Part No.
NSP	1	P. Chassis (509FE) Assy	AWU1297
NSP	2	50F ADDRESS L Assy	AWW1348
NSP	3	50F ADDRESS S Assy	AWW1349
NSP	4	50F SCAN A Assy	AWW1350
NSP	5	50F SCAN B Assy	AWW1351
NSP	6	P. Panel (50FE) Assy	AWU1298
	7	Reuse PCB Spacer 4.5	AEC2148
	8	Heat Radiation Sheet	AEH1134
	9	Plate Holder	AMR3757
	10	Holder L Assy (509)	AMR3775
	11	Holder S Assy (509)	AMR3776
	12	Address Plate S (509)	ANG3129
	13	Address Plate L (509)	ANG3130
	14	Plate X (509)	ANG3128
	15	PCB Spacer (Reuse)	AEC2122
	16	Address Silicon TS	AEH1160
	17	Address Silicon TL	AEH1161
	18	• • • • •	
	19	• • • • •	
	20	Screw	ABA1351
	21	Screw	ABA1364

9.7 MULTIBASE SECTION


RLS CN8736
IR CN8751
SIDE KEY CN8701
LED CN8721
USB (SIDE)
FAN CONNECT
CN8761
POWER SUPPLY
P6
P7
CN3202
CN3201
50F
DIGITAL
SIDE IO
CN8601
POWER
SUPPLY
P5
A
B
POWER
SUPPLY
P3
PDP-LX509A
Only
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(1) MULTIBASE SECTION PARTS LIST

Mark	No.	Description	Part No.
⚠	1	MAIN Assy	See Contrast table (2)
	2	IO_AUDIO Assy	AWW1355
	3	PC Assy	AWW1359
⚠	4	Ferrite Core (F11, F12)	ATX1048
⚠	5	AC Inlet (CN1)	AKP1336
	6	Flexible Cable (J211)	ADD1533
	7	Flexible Cable (J212)	ADD1534
	8	Flexible Cable (J213)	ADD1535
	9	Flexible Cable (J214)	ADD1536
	10	Flexible Cable (J215)	ADD1537
⚠	11	Housing Wire (J105)	ADX3608
⚠	12	Housing Wire (J104)	ADX3631
	13	14P Housing Wire (J109)	ADX3635
	14	15P Housing Wire (J110)	ADX3636
	15	5P Housing Wire (J111)	ADX3637
	16	10/6/4P Housing Wire (J116)	ADX3642
	17	4P Housing Wire (J119)	ADX3645
	18	Rubber Sheet	AEB1498
	19	Cushion	AEB1499
	20	Wire Saddle	AEC1745
	21	Wire Saddle	AEC1797
	22	Circuit Board Spacer	AEC1872
	23	Ferrite Stopper	AEC1981
	24	Reuse PCB Spacer 4.5	AEC2161
	25	PCB Spacer	AEC2146
	26	• • • • •	
	27	Clamp	AEC2156
	28	Edge Holder	AEC2159
	29	Silicon Sheet MTB A	AEH1174
	30	Silicon Sheet MTB B	AEH1175
	31	• • • • •	
	32	Sleeve	AMR3771
	33	Ether Cover	See Contrast table (2)
	34	MTB Assy	ANA2150
	35	1..T Panel Assy	See Contrast table (2)
	36	2..Label B1 (AU)	AAX3575
	37	2..Label B2	See Contrast table (2)
	38	2..Terminal Panel	See Contrast table (2)
	39	Tuner Panel (EH)	ANG3149
	40	• • • • •	
	41	Earth BKT A	ANG3182
	42	Earth BKT C	ANG3184
⚠	43	Gasket T	ANK1965
⚠	44	Gasket 3 x 40	ANK1971
⚠	45	Gasket (10 x 10 x 80)	ANK1974
⚠	46	Gasket (10 x 5 x 20)	ANK1976
⚠	47	Gasket E	ANK1981
	48	• • • • •	
	49	• • • • •	
⚠	50	Gasket (10 x 8 x 15)	ANK1982
	51	Nylon Rivet	AEC1671
	52	• • • • •	
	53	• • • • •	
	54	• • • • •	
	55	Hexagon Headed Screw	ABA1382
	56	Screw (M3 x 6)	ABA1377
	57	Screw	AMZ30P060FTB
	58	Screw	BMP40P080FSN
	59	Screw	BMZ30P060FTB
	60	Screw	BPZ30P080FTB
	61	Screw	PMB30P060FNI

(2) CONTRAST TABLE

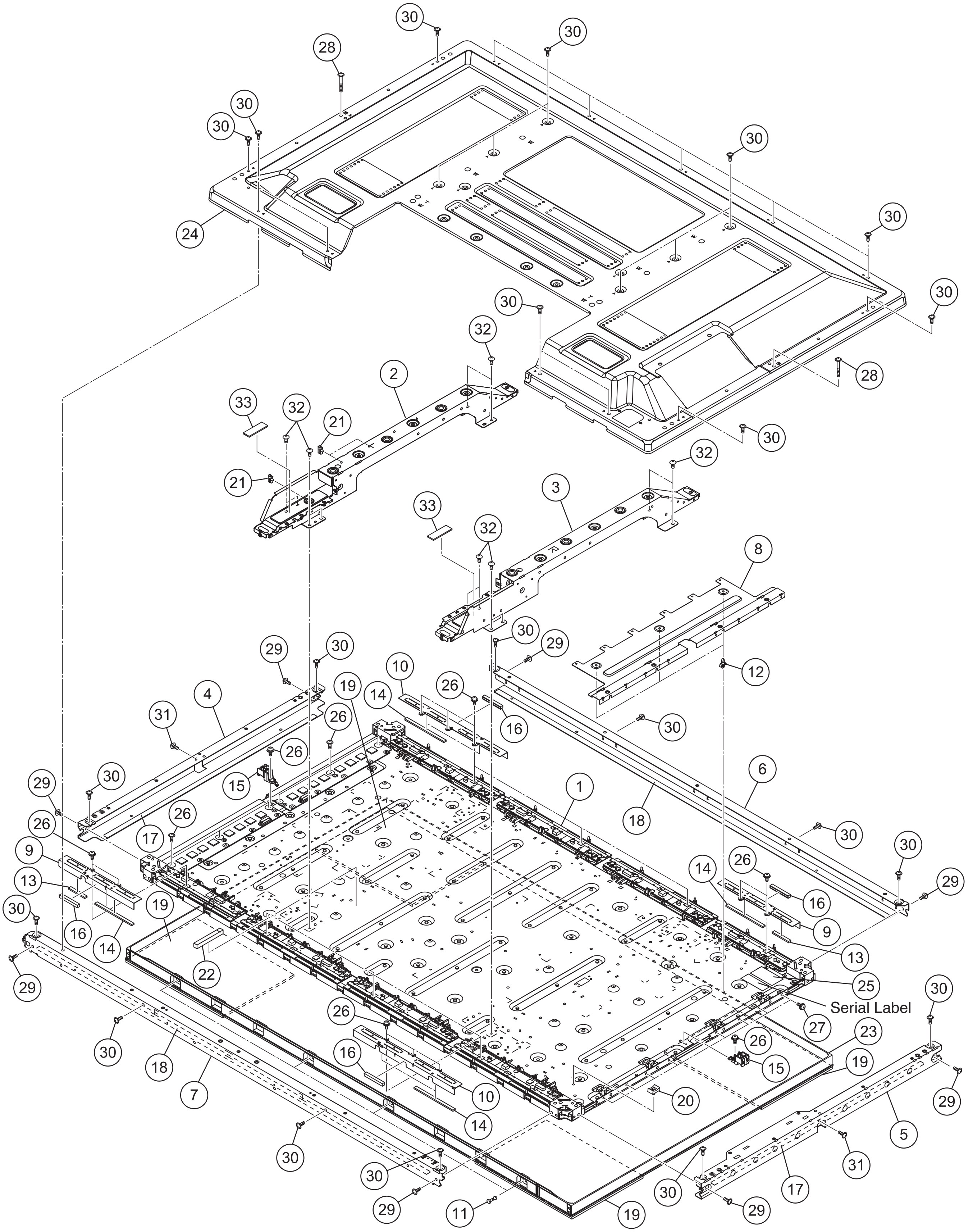
PDP-LX509A/YP and PDP-C509A/YP are constructed the same except for the following:

Mark	No.	Symbol and Description	PDP-LX509A /YP	PDP-C509A /YP
⚠	1	MAIN Assy	AWV2557	AWV2588
	33	Ether Cover	AMR3789	Not used
	35	T Panel AU Assy	ANC2478	Not used
	35	T Panel C509A Assy	Not used	ANC2483
	37	Label B2 (U)	AAX3582	Not used
	37	Label B2 (C509A)	Not used	AAX3601
	38	Terminal Panel (AU)	ANC2467	Not used
	38	Terminal Panel (C509A)	Not used	ANC2482

9.8 PDP SERVICE ASSY

PDP SERVICE ASSY 509FE : AWU1342

● Exterior Section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19
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16
14
13
22
29
25
Serial Label
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26
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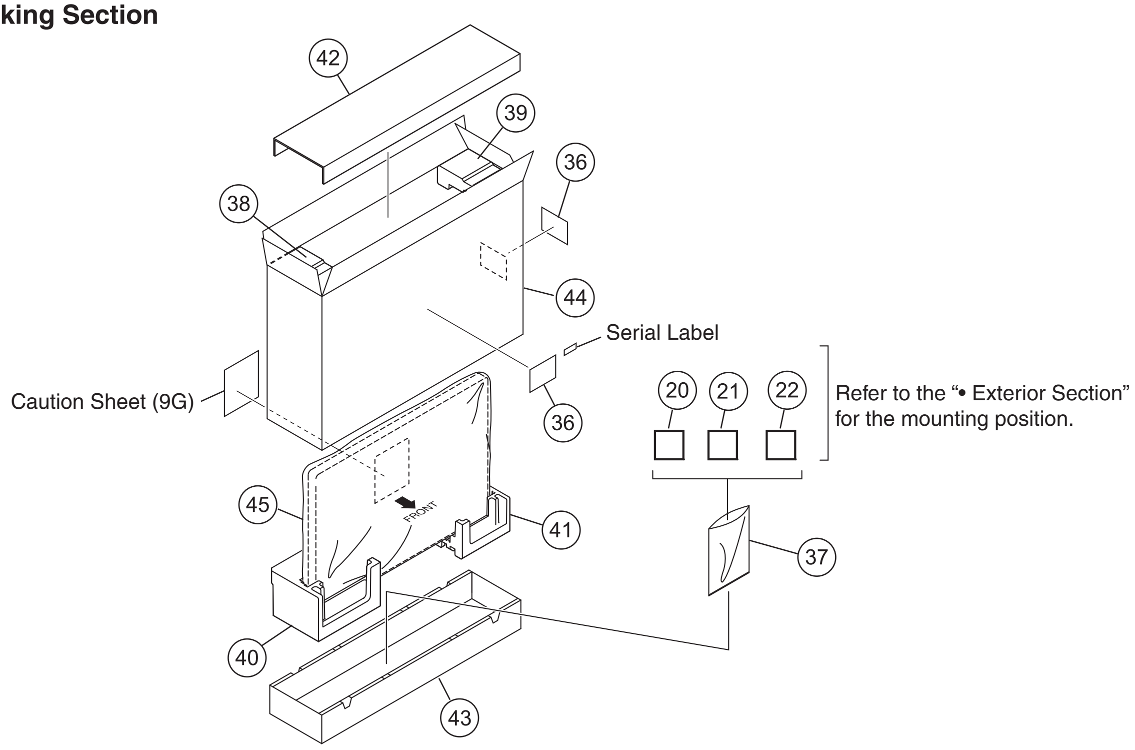
● Packing Section



Refer to the "• Exterior Section" for the mounting position.

PDP SERVICE ASSY PARTS LIST

Mark	No.	Description	Part No.
NSP	1	P. Chassis (509FE) Assy	AWU1297
	2	Sub Frame L Assy (50)	ANA2137
	3	Sub Frame R Assy (50)	ANA2140
	4	F. Chassis VL Assy 50	ANA2142
	5	F. Chassis VR Assy 50	ANA2151
	6	F. Chassis HT Assy 50	ANA2144
	7	F. Chassis HB 50	ANA2188
	8	Plate X (509)	ANG3128
	9	Address Plate S (509)	ANG3129
	10	Address Plate L (509)	ANG3130
	11	Rivet (Plastic)	AEC1877
	12	PCB Spacer (Reuse)	AEC2122
	13	Address Silicon TS	AEH1160
	14	Address Silicon TL	AEH1161
	15	Support Bracket	AMR3762
⚠	16	Gasket ADH-FCH	ANK1850
⚠	17	Front Gasket V50	ANK1963
⚠	18	Front Gasket H50	ANK1964
	19	Service Pad	AEC2105
	20	Ferrite Core Holder	AEC1818
	21	Wire Clip	AEC1948
⚠	22	Gasket (10 x 10 x 80)	ANK1974
NSP	23	Front Service Assy (509)	AMB3103
	24	Rear Case (509)	ANE1671
NSP	25	Drive Voltage Label	ARW1097
	26	Screw	ABA1351
	27	Screw	ABA1364
	28	Screw (3 x 25 P)	ABA1380
	29	Screw	ABZ30P080FTC
	30	Screw	AMZ30P060FTB
	31	Screw	APZ30P080FTB
	32	Screw	TBZ40P060FTC
	33	Stand Cushion	AED1340
	34	• • • • •	
	35	• • • • •	
	36	Caution Label	AAX3031
	37	Vinyl Bag	AHG1338
	38	Pad (509 T-L EU)	AHA2727
	39	Pad (509 T-R EU)	AHA2728
	40	Pad (509 B-L EU)	AHA2729
	41	Pad (509 B-R EU)	AHA2730
	42	Carton Board (509)	AHB1303
	43	Under Carton (5090)	AHD3673
	44	Upper Carton (509F-SV)	AHD3716
	45	Protect Sheet	AHG1331

Service Manual

ORDER NO.
ARP3525

FLAT SCREEN TV

PDP-LX509A

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
PDP-LX509A	YP1	AC 240 V	

This service manual should be used together with the following manual(s).

Model No.	Order No.	Remarks
PDP-LX509A/YP	ARP3513	EXPLODED VIEWS, BLOCK DIAGLAM, ADJUSTMENT, etc.

To distinguish these models from other model, confirm the serial number.

	Model Name	Serial No.	Order No.
This Model	PDP-LX509A/YP1	&&&&1XXXXX&&	ARP3525
Other Model	PDP-LX509A/YP	&&&&0XXXXX&&	ARP3513

&: Alphabetics X: Numerics

There are two type of different models in PDP-LX509A. Differences between these models are using different characteristic of glass panel. The DIGITAL Assy and Service Panel Assy between them are different. Therefore, when these parts are to be replaced, be sure to use the parts that are specified in each manual. If the parts of this model are accidentally used in the other model, it may result in abnormal electrical discharge or reduction in life expectancy of the Panel.

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

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T-ZZA-001 NOV. 2008 Printed in Japan

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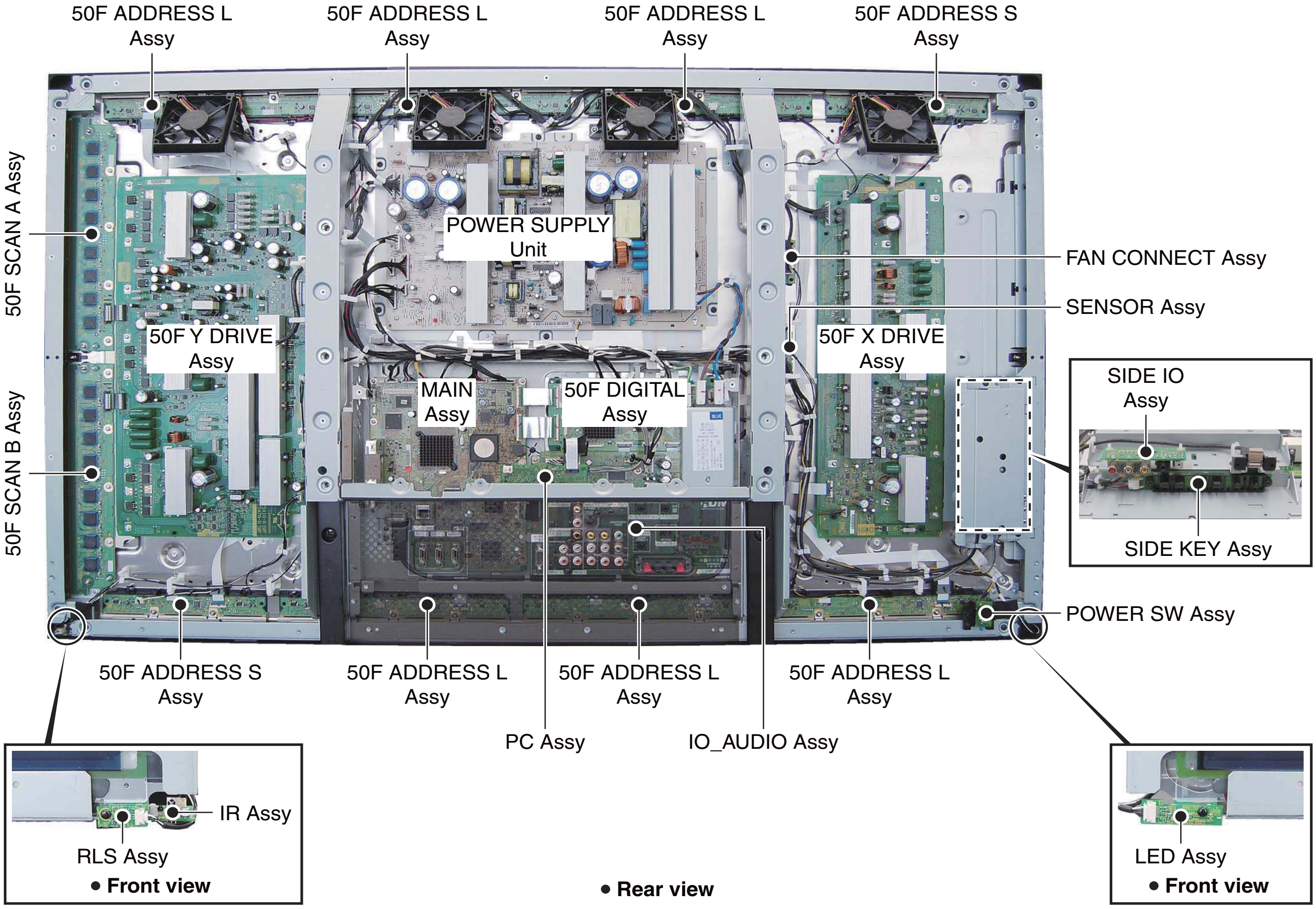
1. BASIC ITEM FOR SERVICE

1.1 PCB LOCATION

Note: The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype. Upon servicing, be sure to restore the original wiring of the unit after repair work.


50F ADDRESS L Assy
50F ADDRESS L Assy
50F ADDRESS L Assy
50F ADDRESS S Assy
50F SCAN A Assy
50F SCAN B Assy
POWER SUPPLY Unit
50F Y DRIVE Assy
MAIN Assy
50F DIGITAL Assy
50F X DRIVE Assy
FAN CONNECT Assy
SENSOR Assy
SIDE IO Assy
SIDE KEY Assy
POWER SW Assy
50F ADDRESS S Assy
50F ADDRESS L Assy
50F ADDRESS L Assy
50F ADDRESS L Assy
PC Assy
IO_AUDIO Assy
IR Assy
RLS Assy
● Front view
● Rear view
LED Assy
● Front view

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*

● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

LIST OF ASSEMBLIES

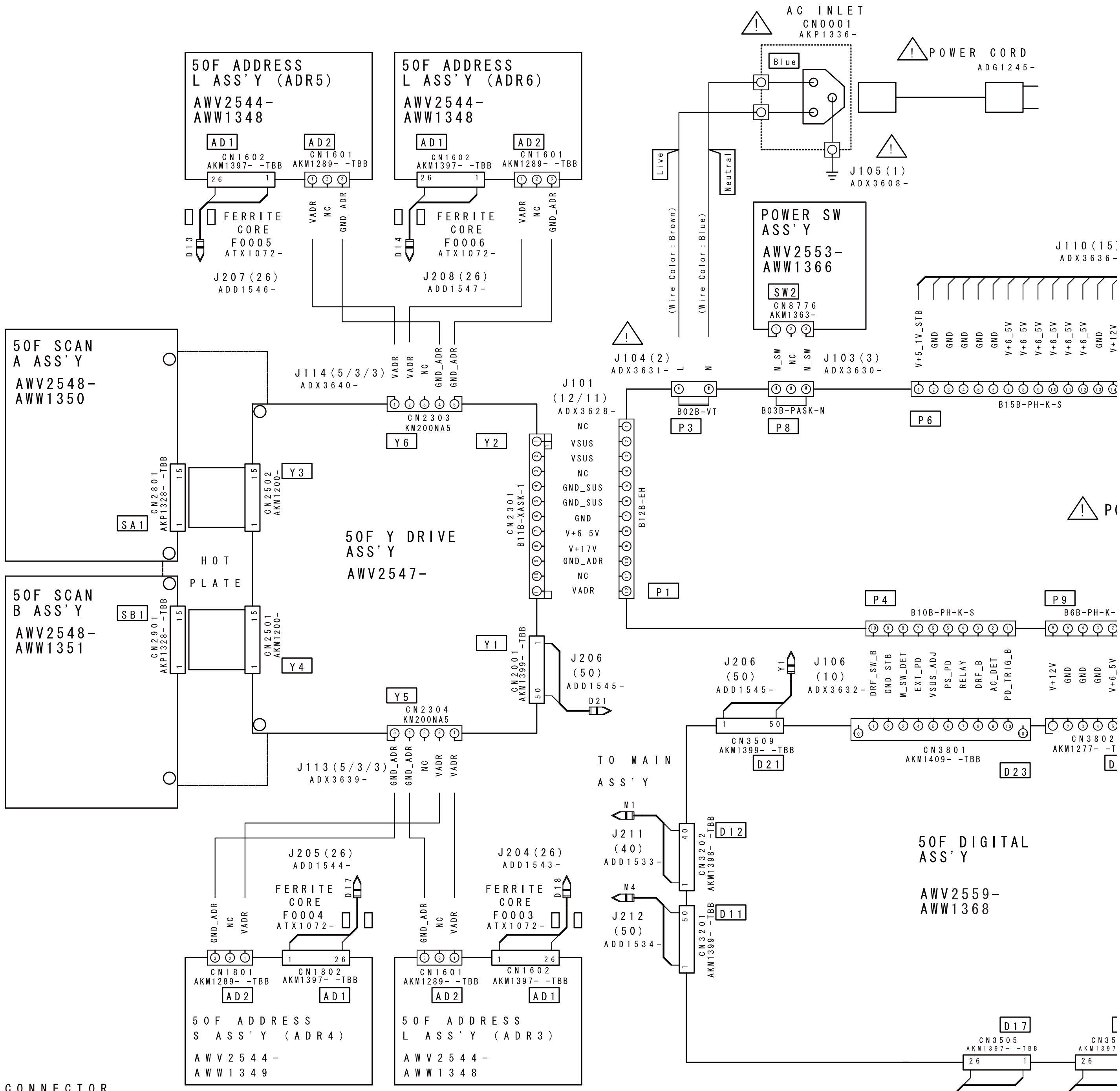
Mark	No.	Description	Part No.
NSP		50F ADDRESS L ASSY	AWW1348
NSP		50F ADDRESS S ASSY	AWW1349
NSP		50F SCAN A ASSY	AWW1350
		└ IC2801 - IC2808	AN16184A
NSP		50F SCAN B ASSY	AWW1351
		└ IC2901 - IC2908	AN16184A
		SENSOR ASSY	AWW1340
∗		50F DIGITAL Assy	AWW1368
		50F X DRIVE ASSY	AWV2546
		50F Y DRIVE ASSY	AWV2547

Mark	No.	Description	Part No.
⚠		MAIN ASSY	AWV2557
		IO_AUDIO ASSY	AWW1355
		SIDE IO ASSY	AWW1356
		PC ASSY	AWW1359
		SIDE KEY ASSY	AWW1361
		LED ASSY	AWW1362
		IR ASSY	AWW1363
		FAN CONNECT ASSY	AWW1364
		RLS ASSY	AWW1365
		POWER SW ASSY	AWW1366
⚠		POWER SUPPLY UNIT	AXY1200
∗		PDP SERVICE ASSY 509FE	AWU1367

∗: These Assys are different parts from PDP-LX509A/YP.

2. BLOCK DIAGRAM

2.1 OVERALL WIRING DIAGRAM


AC INLET
CN0001
AKP1336-
Blue
POWER CORD
ADG1245-
J105(1)
ADX3608-
Live
Neutral
(Wire Color:Brown)
(Wire Color:Blue)
50F ADDRESS L ASS'Y (ADR5)
AWV2544-
AWW1348
AD1
AD2
CN1602
AKM1397- -TBB
CN1601
AKM1289- -TBB
FERRITE CORE
F0005
ATX1072-
D13
J207(26)
ADD1546-
VADR
NC
GND_ADR
50F ADDRESS L ASS'Y (ADR6)
AWV2544-
AWW1348
FERRITE CORE
F0006
ATX1072-
D14
J208(26)
ADD1547-
POWER SW ASS'Y
AWV2553-
AWW1366
SW2
CN8776
AKM1363-
J110(15)
ADX3636-
50F SCAN A ASS'Y
AWV2548-
AWW1350
SA1
CN2801
AKP1328- -TBB
50F SCAN B ASS'Y
AWV2548-
AWW1351
SB1
CN2901
AKP1328- -TBB
HOT PLATE
J114(5/3/3)
ADX3640-
CN2303
KM200NA5
Y6
Y2
Y3
CN2502
AKM1200-
CN2501
AKM1200-
Y4
50F Y DRIVE ASS'Y
AWV2547-
J101
(12/11)
ADX3628-
NC
VSUS
VSUS
NC
GND_SUS
GND_SUS
GND
V+6_5V
V+17V
GND_ADR
NC
VADR
CN2301
B11B-XASK-1
B12B-EH
P1
J104(2)
ADX3631-
L
N
B02B-VT
P3
M_SW
NC
M_SW
J103(3)
ADX3630-
B03B-PASK-N
P8
V+5_1V_STB
GND
GND
GND
GND
V+6_5V
V+6_5V
V+6_5V
V+6_5V
V+6_5V
GND
V+12V
B15B-PH-K-S
P6
P4
B10B-PH-K-S
P9
B6B-PH-K-
Y1
CN2001
AKM1399- -TBB
J206
(50)
ADD1545-
D21
Y5
CN2304
KM200NA5
J113(5/3/3)
ADX3639-
J206
(50)
ADD1545-
Y1
J106
(10)
ADX3632-
DRF_SW_B
GND_STB
M_SW_DET
EXT_PD
VSUS_ADJ
PS_PD
RELAY
DRF_B
AC_DET
PD_TRIG_B
V+12V
GND
GND
V+6_5V
CN3509
AKM1399- -TBB
D21
CN3801
AKM1409- -TBB
D23
CN3802
AKM1277-
TO MAIN ASS'Y
M1
J211
(40)
ADD1533-
CN3202
AKM1398- -TBB
D12
M4
J212
(50)
ADD1534-
CN3201
AKM1399- -TBB
D11
50F DIGITAL ASS'Y
AWV2559-
AWW1368
J205(26)
ADD1544-
FERRITE CORE
F0004
ATX1072-
D17
J204(26)
ADD1543-
FERRITE CORE
F0003
ATX1072-
D18
CN1801
AKM1289- -TBB
CN1802
AKM1397- -TBB
AD2
AD1
50F ADDRESS S ASS'Y (ADR4)
AWV2544-
AWW1349
CN1601
AKM1289- -TBB
CN1602
AKM1397- -TBB
50F ADDRESS L ASS'Y (ADR3)
AWV2544-
AWW1348
D17
CN3505
AKM1397- -TBB
J205
(26)
ADD1544-
AD1(ADR4)
J204
(26)
ADD154
AD1(ADR3)

CONNECTOR PIN ASSIGN

CN3501 D13 → CN1602 AD1
CN3502 D14 → CN1602 AD1
CN3503 D15 → CN1602 AD1
CN3504 D16 → CN1802 AD1
CN3505 D17 → CN1802 AD1
CN3506 D18 → CN1602 AD1
CN3507 D19 → CN1602 AD1
CN3508 D20 → CN1602 AD1

1→26. V+10V
2→25. V+10V
3→24. GND
4→23. GND
5→22. AN
6→21. AP
7→20. GND
8→19. BN
9→18. BP
10→17. GND
11→16. CN
12→15. CP
13→14. GND
14→13. CLKN
15→12. CLKP
16→11. GND
17→10. DN
18→ 9. DP
19→ 8. GND
20→ 7. GND
21→ 6. V+3_3V
22→ 5. V+3_3V
23→ 4. V+3_3V
24→ 3. GND
25→ 2. LS1
26→ 1. ADR_PD

CN2501 Y4
↓
CN2901 SB1

1. VH
2. VH
3. NC
4. NC
5. GNDH_VH
6. GNDH_VH
7. SI
8. GNDH_DIG
9. CLK_L
10. LE
11. OC1
12. OC2
13. CLR
14. GNDH_RL
15. IC5V

CN2502 Y3
↓
CN2801 SA1

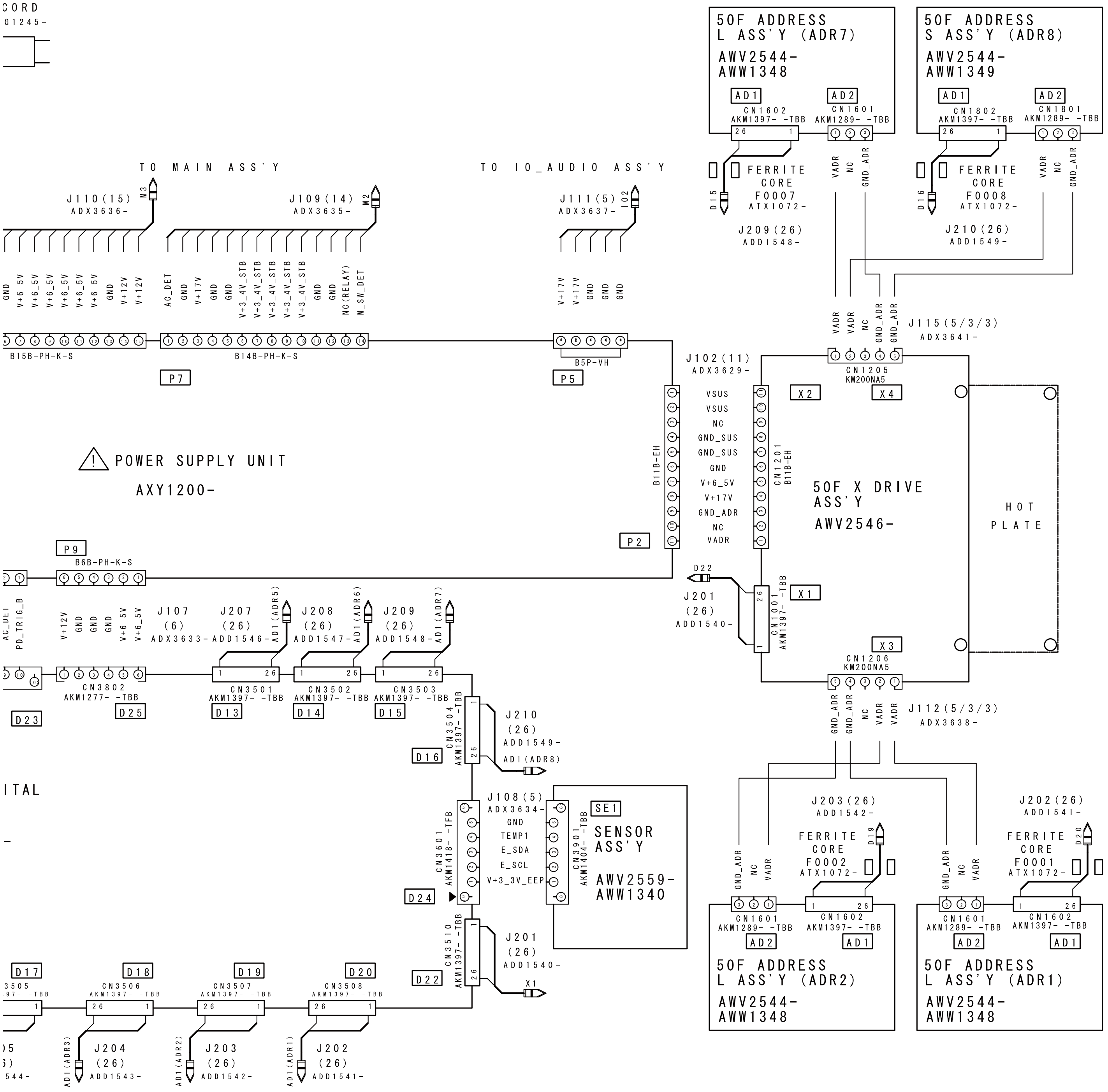
1. VH
2. VH
3. NC
4. NC
5. GNDH_VH
6. GNDH_VH
7. CLK_H
8. GNDH_DIG
9. LE
10. OC1
11. OC2
12. CLR
13. SI
14. GNDH_RH
15. IC5V

CN3509 D21 → CN2001 Y1

1→50. YCN_PD
2→49. VYPRST_ADJ
3→48. SCAN_PD
4→47. GND
5→46. YDD_PD
6→45. VOFS_ADJ
7→44. YSUS_PD
8→43. GND
9→42. YRSV1
10→41. YRSV2
11→40. GND
12→39. YKNOFS4
13→38. YKNOFS3
14→37. YKNOFS2
15→36. YKNOFS1
16→35. GND
17→34. YSOFT-G
18→33. SUS_MUTE
19→32. YSNOFS
20→31. GND
21→30. YRST-D
22→29. YSUS_LMSK
23→28. YSUS_HMSK
24→27. GND
25→26. YSUS_D
26→25. YPR-U
27→24. YSUS_G
28→23. GND
29→22. YSUS_U
30→21. YRSV3
31→20. YSUS_B
32→19. ESW
33→18. GND
34→17. CLK_L
35→16. YRSV4
36→15. SI
37→14. CLK_H
38→13. GND
39→12. LE
40→11. OC1
41→10. OC2
42→ 9. CLR
43→ 8. GND
44→ 7. VKNOFS4_ADJ
45→ 6. VKNOFS3_ADJ
46→ 5. VKNOFS1_2_ADJ
47→ 4. GND
48→ 3. SCN5V_PD
49→ 2. YDRV_PD(GND)
50→ 1. PSW2

CN3201 D11 → CN4101 M4

1→50. V+3_4V_ACT2
2→49. NC
3→48. GND
4→47. MULTI_OE
5→46. RELAY2
6→45. REQ_MD
7→44. RXD_MD
8→43. TXD_MD
9→42. GND
10→41. THEATER
11→40. VD
12→39. HD
13→38. DE
14→37. GND
15→36. CLK
16→35. GND
17→34. R9_EVN
18→33. R8_EVN
19→32. R7_EVN
20→31. R6_EVN
21→30. R5_EVN
22→29. R4_EVN
23→28. R3_EVN
24→27. R2_EVN
25→26. R1_EVN
26→25. R0_EVN
27→24. GND
28→23. G9_EVN
29→22. G8_EVN
30→21. G7_EVN
31→20. G6_EVN
32→19. G5_EVN
33→18. G4_EVN
34→17. G3_EVN
35→16. G2_
36→15. G1_
37→14. G0_
38→13. GND
39→12. B9_
40→11. B8_
41→10. B7_
42→ 9. B6_
43→ 8. B5_
44→ 7. B4_
45→ 6. B3_
46→ 5. B2_
47→ 4. B1_
48→ 3. B0_
49→ 2. GND
50→ 1. MOD


CORD
G1245-
TO MAIN ASS'Y
J110(15)
ADX3636-
M3
J109(14)
ADX3635-
M2
TO IO_AUDIO ASS'Y
J111(5)
ADX3637-
IO2
GND
V+6_5V
V+6_5V
V+6_5V
V+6_5V
V+6_5V
GND
V+12V
V+12V
AC_DET
GND
V+17V
GND
GND
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
V+3_4V_STB
GND
GND
NC(RELAY)
M_SW_DET
V+17V
V+17V
GND
GND
GND
B15B-PH-K-S
B14B-PH-K-S
B5P-VH
P7
P5
POWER SUPPLY UNIT
AXY1200-
B11B-EH
P2
P9
B6B-PH-K-S
AC_DET
PD_TRIG_B
V+12V
GND
GND
GND
V+6_5V
V+6_5V
J107
(6)
ADX3633-
J207
(26)
ADD1546-
AD1(ADR5)
J208
(26)
ADD1547-
AD1(ADR6)
J209
(26)
ADD1548-
AD1(ADR7)
CN3802
AKM1277- -TBB
CN3501
AKM1397- -TBB
CN3502
AKM1397- -TBB
CN3503
AKM1397- -TBB
D23
D25
D13
D14
D15
CN3504
AKM1397- -TBB
D16
J210
(26)
ADD1549-
AD1(ADR8)
ITAL
J108(5)
ADX3634-
GND
TEMP1
E_SDA
E_SCL
V+3_3V_EEP
CN3601
AKM1418- -TFB
CN3901
AKM1404- -TBB
SE1
SENSOR ASS'Y
AWV2559-
AWW1340
D24
CN3510
AKM1397- -TBB
J201
(26)
ADD1540-
X1
D22
D17
D18
D19
D20
3505
CN3506
AKM1397- -TBB
CN3507
AKM1397- -TBB
CN3508
AKM1397- -TBB
J204
(26)
ADD1543-
AD1(ADR3)
J203
(26)
ADD1542-
AD1(ADR2)
J202
(26)
ADD1541-
AD1(ADR1)
50F ADDRESS
L ASS'Y (ADR7)
AWV2544-
AWW1348
AD1
AD2
CN1602
AKM1397- -TBB
CN1601
AKM1289- -TBB
50F ADDRESS
S ASS'Y (ADR8)
AWV2544-
AWW1349
CN1802
AKM1397- -TBB
CN1801
AKM1289- -TBB
FERRITE CORE
F0007
ATX1072-
D15
J209(26)
ADD1548-
FERRITE CORE
F0008
ATX1072-
D16
J210(26)
ADD1549-
VADR
NC
GND_ADR
J115(5/3/3)
ADX3641-
J102(11)
ADX3629-
VSUS
VSUS
NC
GND_SUS
GND_SUS
GND
V+6_5V
V+17V
GND_ADR
NC
VADR
CN1205
KM200NA5
X2
X4
CN1201
B11B-EH
50F X DRIVE ASS'Y
AWV2546-
HOT PLATE
D22
J201
(26)
ADD1540-
CN1001
AKM1397- -TBB
X1
X3
CN1206
KM200NA5
J112(5/3/3)
ADX3638-
J203(26)
ADD1542-
FERRITE CORE
F0002
ATX1072-
D19
J202(26)
ADD1541-
FERRITE CORE
F0001
ATX1072-
D20
CN1601
AKM1289- -TBB
CN1602
AKM1397- -TBB
50F ADDRESS
L ASS'Y (ADR2)
AWV2544-
AWW1348
50F ADDRESS
L ASS'Y (ADR1)
AWV2544-
AWW1348

- When ordering service parts, be sure to refer to “EXPLODED VIEWS and PARTS LIST” or “PCB PARTS LIST”.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

M4

. R8_EVN
. R7_EVN
. R6_EVN
. R5_EVN
. R4_EVN
. R3_EVN
. R2_EVN
. R1_EVN
. R0_EVN
. GND
. G9_EVN
. G8_EVN
. G7_EVN
. G6_EVN
. G5_EVN
. G4_EVN
. G3_EVN

35→16. G2_EVN
36→15. G1_EVN
37→14. G0_EVN
38→13. GND
39→12. B9_EVN
40→11. B8_EVN
41→10. B7_EVN
42→ 9. B6_EVN
43→ 8. B5_EVN
44→ 7. B4_EVN
45→ 6. B3_EVN
46→ 5. B2_EVN
47→ 4. B1_EVN
48→ 3. B0_EVN
49→ 2. GND
50→ 1. MODE_A

CN3202 D12 → CN4105 M1

1→40. MODE_B
2→39. SQ_SEL
3→38. GND
4→37. GND
5→36. R9_ODD
6→35. R8_ODD
7→34. R7_ODD
8→33. R6_ODD
9→32. R5_ODD
10→31. R4_ODD

11→30. R3_ODD
12→29. R2_ODD
13→28. R1_ODD
14→27. R0_ODD
15→26. GND
16→25. G9_ODD
17→24. G8_ODD
18→23. G7_ODD
19→22. G6_ODD
20→21. G5_ODD

21→20. G4_ODD
22→19. G3_ODD
23→18. G2_ODD
24→17. G1_ODD
25→16. G0_ODD
26→15. GND
27→14. B9_ODD
28→13. B8_ODD
29→12. B7_ODD
30→11. B6_ODD

31→10. B5_ODD
32→ 9. B4_ODD
33→ 8. B3_ODD
34→ 7. B2_ODD
35→ 6. B1_ODD
36→ 5. B0_ODD
37→ 4. GND
38→ 3. GND
39→ 2. GND
40→ 1. MODE_C

CN3510 D22 → CN1001 X1

1→26. XSUS_B
2→25. GND
3→24. XSUS_U
4→23. GND
5→22. XSUS_D
6→21. GND
7→20. XSUS_G
8→19. GND
9→18. XPRST
10→17. GND
11→16. XKOFS1
12→15. GND
13→14. XKOFS2

14→13. GND
15→12. XSOFT_D
16→11. GND
17→10. SUS_MUTE
18→ 9. GND
19→ 8. XKOFS1_ADJ
20→ 7. XKOFS2_ADJ
21→ 6. GND
22→ 5. XDD_PD
23→ 4. PSW2
24→ 3. XRSV1
25→ 2. Psize
26→ 1. XSUS_PD

3. DIAGNOSIS

DIAGNOSIS for PDP-LX509A/YP1 is the same as YP except for the following:

3.1 DETAILS OF EACH COMMANDS

[1] QS1 (PANEL STATUS)

Model information and version information are returned.

Command Format	Effective Operation Modes	Function	Remarks
[QS1]	Every Time	Output of status	Return data: 3 (ECO) + 112 (DATA) + 2 (CS) = 117 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS1
1	Resolution/Size	1 byte	F
2	Panel Generation	1 byte	9
3	Destination	1 byte	∗
4	Grade	1 byte	∗
5	Panel Product Form	1 byte	A
6	Boot version of Module microcomputer	3 byte	-01A
7	Program version of Module microcomputer	8 byte	-01A‘’’’
8	Boot version of sequence processor	3 byte	-01Z
9	Program version of sequence processor	8 byte	-01Z‘’’’
10	Panel information	8 byte	G9_50F_2
11	Derivative operation identification	1 byte	∗
12	Reserved (panel section)	7 byte	∗∗∗∗∗∗∗
13	, (comma)	1 byte	,
14	MTB generation	1 byte	9
15	MTB destination	1 byte	A
16	MTB grade	1 byte	H
17	MTB product form	1 byte	B
18	Program version of IF microcomputer	8 byte	-01A
19	Boot version of IF microcomputer	4 byte	01A
20	Program version of Main microcomputer	8 byte	-01A
21	Boot version of Main microcomputer	4 byte	01A
22	Common version of ASIC	8 byte	-01A
23	Boot version of ASIC	8 byte	01A
24	PRS version of ASIC	8 byte	-01A
25	PIC version of ASIC	8 byte	-01A
26	Common version of the Digital Tuner	8 byte	-0A
27	Boot version of the Digital Tuner	4 byte	01A
CS	2 Byte	2 byte	4A

11: Derivative Operation Identification	
∗	Standard model operation
1	Derivative model operation

14: MTB Generation	
9	G9

15: MTB Destination	
A	North America
C	China
E	Europe
G	General
J	Japan
U	Australia

16: MTB Grade	
H	Elite/One body Europe HD /System Europe HD/One body Australia
T	Regular/One body Europe SD
D	Derivative Model
∗	No Grade (Japan/General/China)

17: MTB Product Form	
B	One body model
S	System model

1: Resolution/Size	
F	50-FHD (1920∗1080)
G	60-FHD (1920∗1080)

2: Panel Generation	
9	G9

3: Destination	
∗	Commonness

4: Grade	
∗	Commonness
Z	Evaluation

5: Panel Product Form	
A	One body/monitor model
S	System model

10: Panel Information (8 Byte)		
1 to 2nd byte	G9	Generation information
4 to 5th byte	50	50 inch
	60	60 inch
6th byte	F	FHD
8th byte	3	50 inch 2nd PLANT (Reserved)
	2	50 inch 2nd PLANT
	1	50 inch 1st PLANT
	‘	Others

‘ = space

4. SERVICE FACTORY MODE

SERVICE FACTORY MODE for PDP-LX509A/YP1 is the same as YP except for the following:

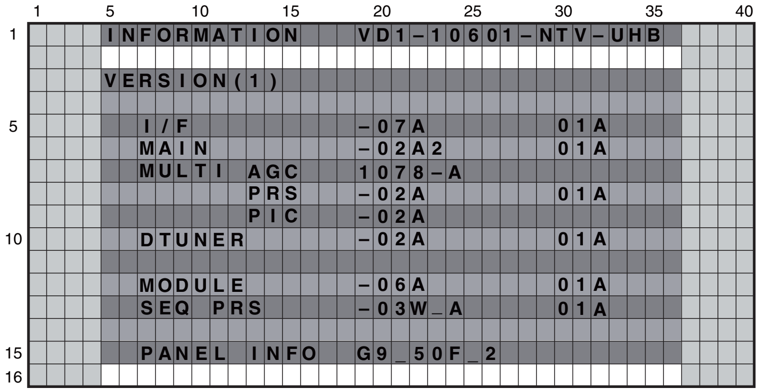
4.1 DETAILS OF FACTORY MENU

[1] INFORMATION

■ Operation items

No.	Function	Content	RS-232C Command
[1-1]	VERSION (1)	The Flash memory versions for each device are displayed.	QS1
[1-2]	VERSION (2)	The Flash memory versions for each device are displayed.	QSE
[1-3]	MAIN NG	The Shutdown NG information and Event Times in the MTB section are displayed.	QNG
[1-4]	TEMPERATURE	The present temperature and the FAN rotating status are displayed.	–
[1-5]	HOUR METER	The accumulation power ON count of the panel is displayed.	–
[1-6]	HDMI SIGNAL INFO 1	The status registers of HDMI receiver are displayed with hexadecimal.	–
[1-7]	HDMI SIGNAL INFO 2		
[1-8]	VDEC SIGNAL INFO 1	Display the signal information input to VDEC	–
[1-9]	VDEC SIGNAL INFO 2		

[1-1] VERSION (1)



```
    INFORMATION   VD1–10601–NTV–UHB

    VERSION(1)

      I/F         –07A       01A
      MAIN        –02A2      01A
      MULTI AGC   1078–A
            PRS   –02A       01A
            PIC   –02A
      DTUNER      –02A       01A

      MODULE      –06A       01A
      SEQ PRS     –03W_A     01A

      PANEL INFO  G9_50F_2
```

Display Item	Meaning	Display Example (Program)	Display Example (Boot)
I/F	I/F microcomputer	-07A	01A
MAIN	Main microcomputer	-02A2	01A
MULTI AGC	AGC data of Multi processor	1078-A	
MULTI PRS	Program of Multi processor	-02A	01A
MULTI PIC	Picture quality data of Multi processor	-02A	
DTUNER	Software program of the Digital tuner	-02A	01A
MODULE	Module microcomputer	-06A	01A
SEQ PRS	Program of Sequence processor	-03W	01A
PANEL INFO	It displays the generation of the panel, inchage and the type of the panel. For details on display values and setting, see “10: Panel information in 5.9 [1] QS1 (PANEL STATUS).”	–	–

5. EACH SETTING AND ADJUSTMENT

EACH SETTING AND ADJUSTMENT for PDP-LX509A/YP1 is the same as YP except for the following:

5.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

Service Panel Assy ➡ Refer to "5.2 ADJUSTMENT WHEN THE SERVICE PANEL ASSY IS REPLACED".

OTHER assemblies ➡ Refer to "8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED" on ARP3513.

■ When any of the following parts is replaced

Notes on replacing parts

For the parts described in the list below, replacement is required for the whole Assy, not only the defective part.
If any part listed below is identified as defective and needs replacement, replace the whole Assy, and make necessary adjustments after replacement.

PCB Assy No.	Assy Name	Parts that Require Whole-Assy Replacement		
		Ref No.	**Function Name**	**Part No.**
AWV2557	MAIN Assy	IC5002	EEPROM	BR24L02FV-W
		IC5003	EEPROM	BR24L02FV-W
		IC5004	EEPROM	BR24L02FV-W
		IC6001	System IC	BCM7404XKPB11G
		IC7004	EEPROM	BR24L64F-W
		IC6201	DDR SDRAM	EDD5116AFTA-5B-E
		IC6202	DDR SDRAM	EDD5116AFTA-5B-E
		IC6203	DDR SDRAM	EDD5116AFTA-5B-E
		IC6204	DDR SDRAM	EDD5116AFTA-5B-E
		IC6403	Flash ROM	AGC1084
		IC6701	Flash ROM	AGC1079
		IC6811	Flash UCOM	AGC1072
		IC7202	Flash ROM	AGC1077
AWV2559	DIGITAL Assy	IC3302	Flash ROM	AGC1096
		IC3601	Flash UCOM	AGC1095
AWW1359	PC Assy	IC8802	EEPROM	BR24L01AFJ-W
AWW2546	X DRIVE Assy	• Parts of X D-D CON BLOCK		
AWW2547	Y DRIVE Assy	• Parts of Y VF D-D CON BLOCK 1 • Parts of Y MAIN D-D CON BLOCK 1 • Parts of Y MAIN D-D CON BLOCK 2		

Reason: The whole Assy must be replaced, because adjustments and data rewriting for the Assy at the level of production line are required.

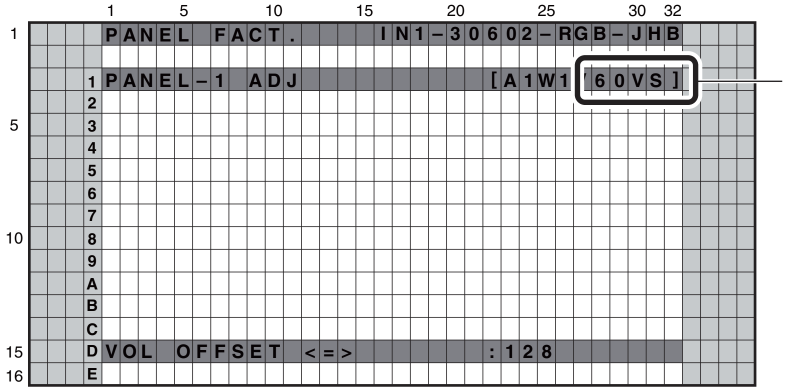
5.2 ADJUSTMENT WHEN THE SERVICE PANEL ASSY IS REPLACED

After the panel is replaced with one for service, voltage margin adjustment is required.

[Preparation]

Basically, voltage margin adjustment is performed using the Panel Factory menu.
After the panel is replaced and the unit is turned on, clear the pulse meter first.
For details on how to clear the pulse meter, see "8.3 HOW TO CLEAR HISTORY DATA" on ARP3513.

∗1: As various corrections are made referring to the pulse-meter count to calculate how long the panel has been used, if adjustment of the panel for service is performed without clearing the pulse-meter count, proper adjustments will not be performed.
∗2: The drive sequence for Video 60-Hz is used for adjustment. When adjustment is made using the Panel Factory menu, the current drive sequence is displayed on the screen, as shown in the figure below. Make sure that 60VS is always indicated during adjustment.



```
  PANEL FACT.         IN1-30602-RGB-JHB

1 PANEL-1 ADJ               [A1W1/60VS]
2
3
4
5
6
7
8
9
A
B
C
D VOL OFFSET <=>            :128
E
```

Drive sequence indication

Example of the On-Screen display during Panel Factory mode

[Supplement]

In the "PANEL-1ADJ" layer, the Panel White Balance value is reset to default, Panel Gamma is set to Straight, Noise is set to OFF, LUT mode is set to ON and Reset active control is set to OFF.
If adjustment is performed using RS232C commands, unlike the case of Factory menu operation, adjustments are not interlocked. Therefore, settings must be performed individually, by issuing commands. (See the section on preparations before adjustment.)

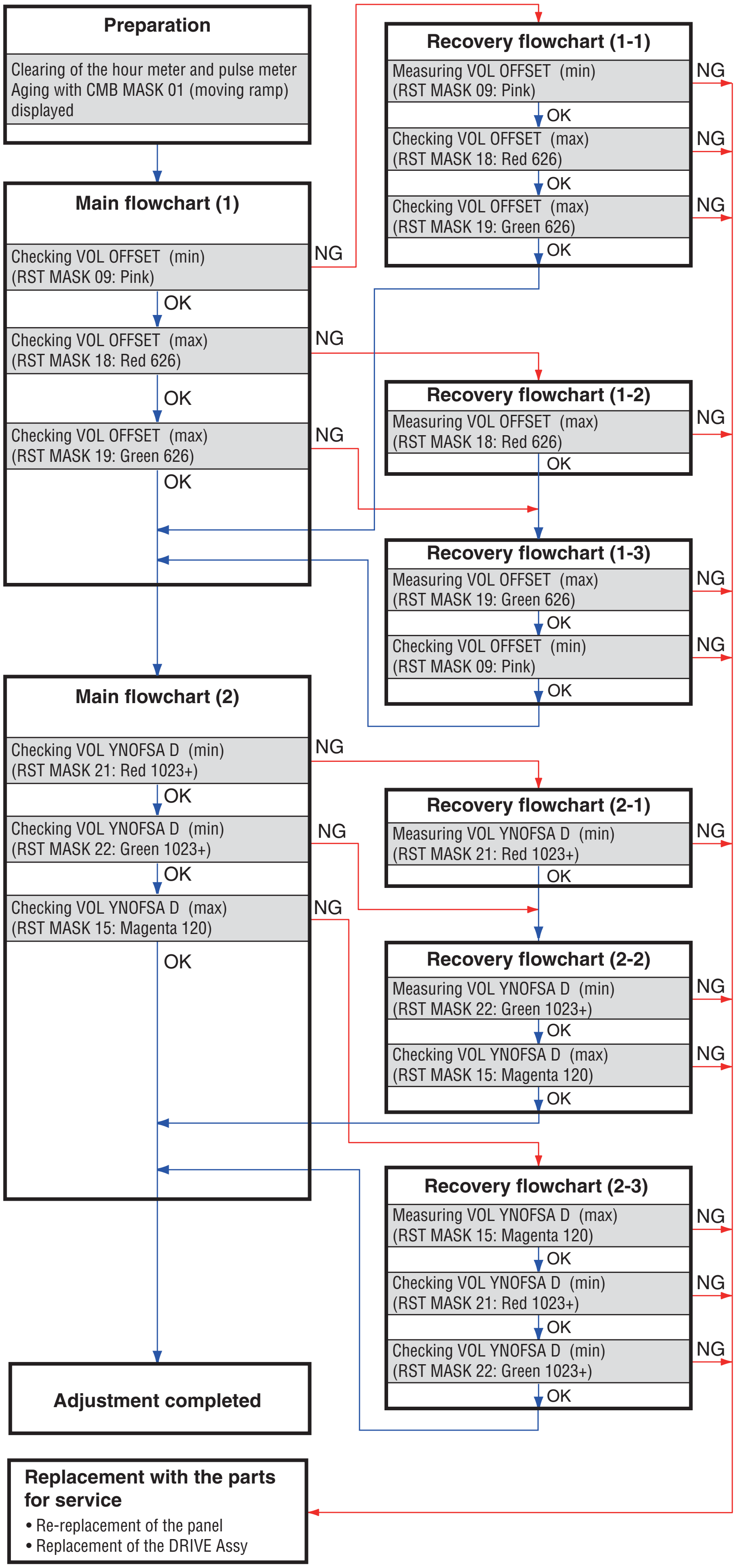
Note

Two types of 9G 50-inch panels exist for this destination. During panel replacement, if a different type of panel is attached by mistake, lighting of cells is not executed properly, and life adjustment cannot be done properly.
Before performing adjustment after panel replacement, be sure to confirm that the new panel for service is an appropriate panel and that the adjustment flowchart is suitable for the panel.

[How to confirm the type of the panel]

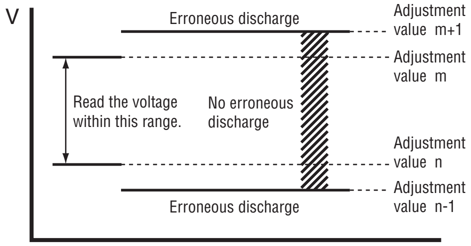
- Check the serial number (See the note described on the cover of this manual.)
- Check on the Factory menu that the PANEL INFO item is G9_50F_2.
- Check by issuing the QS1 command that “Panel information” is “G9_50F_2.”

Overview


Preparation
Clearing of the hour meter and pulse meter
Aging with CMB MASK 01 (moving ramp) displayed
Main flowchart (1)
Checking VOL OFFSET (min) (RST MASK 09: Pink)
OK
Checking VOL OFFSET (max) (RST MASK 18: Red 626)
OK
Checking VOL OFFSET (max) (RST MASK 19: Green 626)
OK
NG
Recovery flowchart (1-1)
Measuring VOL OFFSET (min) (RST MASK 09: Pink)
Checking VOL OFFSET (max) (RST MASK 18: Red 626)
Checking VOL OFFSET (max) (RST MASK 19: Green 626)
Recovery flowchart (1-2)
Measuring VOL OFFSET (max) (RST MASK 18: Red 626)
Recovery flowchart (1-3)
Measuring VOL OFFSET (max) (RST MASK 19: Green 626)
Checking VOL OFFSET (min) (RST MASK 09: Pink)
Main flowchart (2)
Checking VOL YNOFSA D (min) (RST MASK 21: Red 1023+)
Checking VOL YNOFSA D (min) (RST MASK 22: Green 1023+)
Checking VOL YNOFSA D (max) (RST MASK 15: Magenta 120)
Recovery flowchart (2-1)
Measuring VOL YNOFSA D (min) (RST MASK 21: Red 1023+)
Recovery flowchart (2-2)
Measuring VOL YNOFSA D (min) (RST MASK 22: Green 1023+)
Checking VOL YNOFSA D (max) (RST MASK 15: Magenta 120)
Recovery flowchart (2-3)
Measuring VOL YNOFSA D (max) (RST MASK 15: Magenta 120)
Checking VOL YNOFSA D (min) (RST MASK 21: Red 1023+)
Checking VOL YNOFSA D (min) (RST MASK 22: Green 1023+)
Adjustment completed
Replacement with the parts for service
• Re-replacement of the panel
• Replacement of the DRIVE Assy

Range of margin measuring

Read the voltage within the hysteresis (stricter value).


V
Erroneous discharge
Adjustment value m+1
Adjustment value m
Read the voltage within this range.
No erroneous discharge
Adjustment value n
Adjustment value n-1
Erroneous discharge

Definition of limits for the voltage margins (abnormal lit/dead cells)

Abnormal lit cells:

- Five or fewer abnormal cells on the whole screen
- Two or fewer abnormal cells within a radius of 1 cm

Abnormal dead cells

- Fifteen or fewer abnormal cells on the whole screen
- Two or fewer abnormal cells within a radius of 1 cm

∗: Abnormal cells visually recognizable at a distance of 1 meter from the panel must be counted.

∗: Cells displayed abnormally for less than one second are not counted as abnormal cells.

Definition of tones for the measuring signals

FHD signal (1920*1080)/Video 60-Hz sequence /Dither: ON, L dither: ON, noise: OFF

Pink	RST MASK 09 (R 1023 /G 626 /B 1023)
Magenta 120	RST MASK 15 (R 120 /G 0 /B 120)
Red 626	RST MASK 18 (R 626 /G 0 /B 0)
Green 626	RST MASK 19 (R 0 /G 626 /B 0)
Blue 626	RST MASK 20 (R 0 /G 0 /B 626)
Red 1023+	RST MASK 21 (R 1023 /G 120 /B 120)
Green 1023+	RST MASK 22 (R 120 /G 1023 /B 120)
Blue 1023+	RST MASK 23 (R 120 /G 120 /B 1023)

Interlocked settings for Voltages Vyknofs1/3/4

For the 9th-generation PDPs, interlocked setting for Voltages Vyknofs1/3/4 is available on the Factory menu or with RS232C commands, for easier adjustment. Therefore, in the adjustment flowchart, the interlocked setting function is used. (Individual setting for each adjustment value is also possible, as in the conventional setting methods.

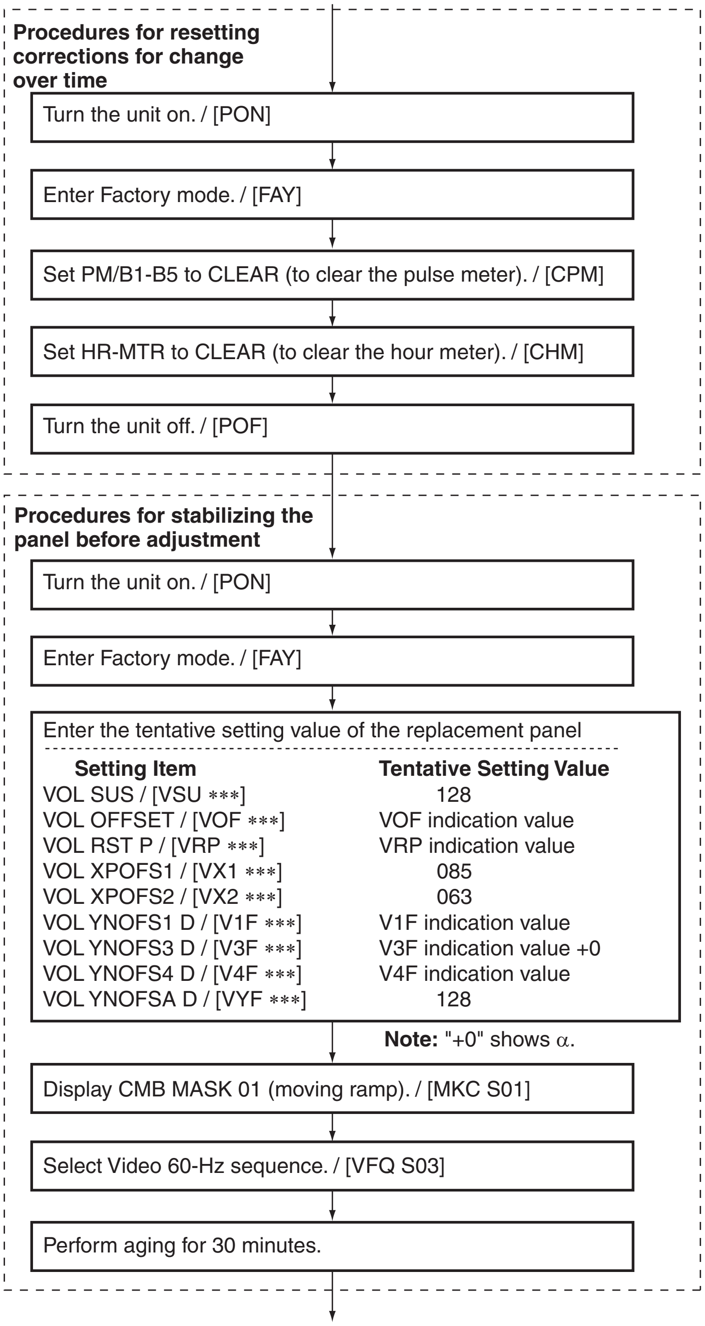
Set Voltage	Factory Menu	Command
Vyknofs1 individual	VOL YNOFS1 D	[V1F]
Vyknofs3 individual	VOL YNOFS3 D	[V3F]
Vyknofs4 individual	VOL YNOFS4 D	[V4F]
Vyknofs1,3,4 interlocked	VOL YNOFSA D	[VYF]

Note:

- The initial value for the interlocked setting value is 128, including for factory preset values.
- See "[3] DRIVE ASSY" of "5.2 DIAGNOSIS FLOWCHART OF FAILURE ANALYSIS" for calculation of actually used voltage values.

Preparation before adjustment

[Replacement with the panel for service is completed.]



Procedures for resetting corrections for change over time

Turn the unit on. / [PON]

Enter Factory mode. / [FAY]

Set PM/B1-B5 to CLEAR (to clear the pulse meter). / [CPM]

Set HR-MTR to CLEAR (to clear the hour meter). / [CHM]

Turn the unit off. / [POF]

∗ To reflect the results of log clearing for each correction function, the unit must be turned off then back on again. Before adjustment, be sure to turn the unit off then back on again.

Procedures for stabilizing the panel before adjustment

Turn the unit on. / [PON]

Enter Factory mode. / [FAY]

Enter the tentative setting value of the replacement panel

Setting Item	Tentative Setting Value
VOL SUS / [VSU ∗∗∗]	128
VOL OFFSET / [VOF ∗∗∗]	VOF indication value
VOL RST P / [VRP ∗∗∗]	VRP indication value
VOL XPOFS1 / [VX1 ∗∗∗]	085
VOL XPOFS2 / [VX2 ∗∗∗]	063
VOL YNOFS1 D / [V1F ∗∗∗]	V1F indication value
VOL YNOFS3 D / [V3F ∗∗∗]	V3F indication value +0
VOL YNOFS4 D / [V4F ∗∗∗]	V4F indication value
VOL YNOFSA D / [VYF ∗∗∗]	128

Note: "+0" shows α.

Display CMB MASK 01 (moving ramp). / [MKC S01]

Select Video 60-Hz sequence. / [VFQ S03]

Perform aging for 30 minutes.

[To the Main flowchart (1)]

Indication example of the adjustment label of service panel

AWU1359 Data **VOF=113**
VRP=018 **V1F=138** **V3F=128+α**
V4F=149 **Hour Meter_ _ _ _ _ _ _ _ _ _ H**
Data 08/02/28 Chassis CXX99999
Time 18:27 Pnl FD4A0808100123

Note: The symbol "α" denotes the adjustment value plus 0.

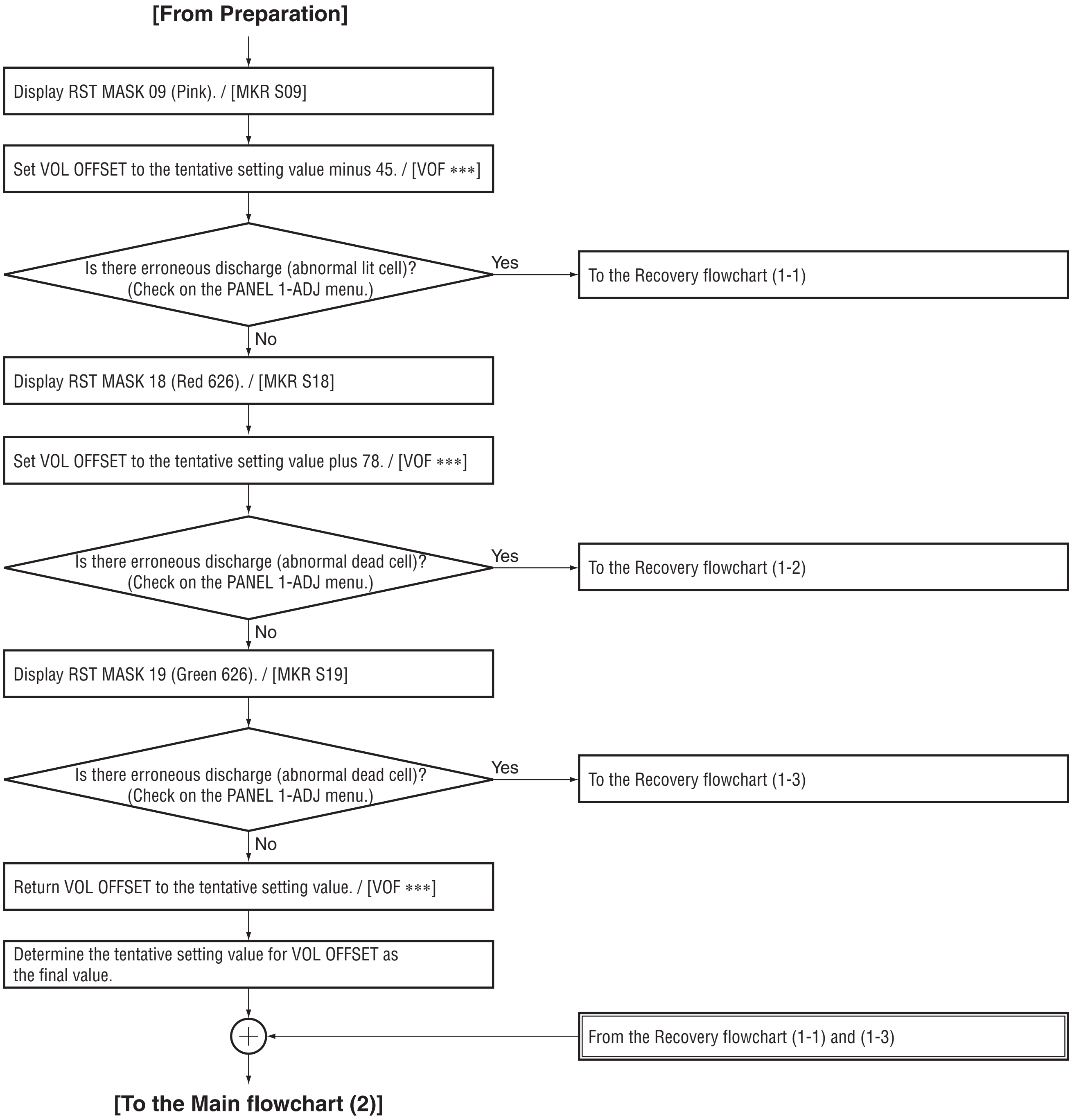
∗ Each setting value described on the adjustment label denotes an indicated data value but not a real voltage value. Therefore, just enter the data value as a setting value.

∗ To store the VFQ S03 command in memory, transmit it after displaying the mask.

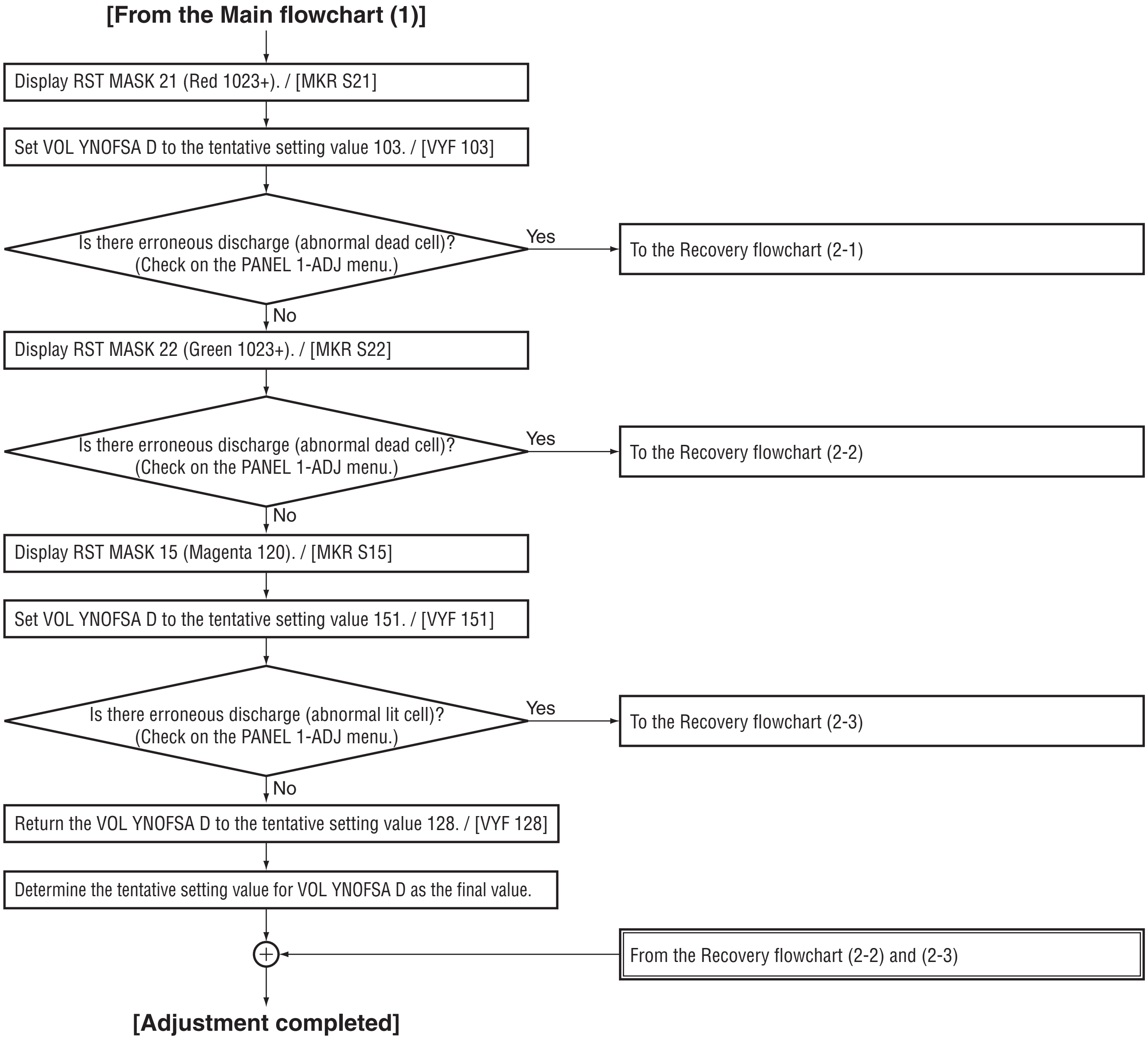
Note:
* When you perform the adjustment with RS232C commands, issue the following commands in addition.
* If the unit is shut down in the middle of performing the adjustment flowchart, reissuing of the command is required.

[PAV S00]	: To set panel drive mode to Factory
[VFQ S03]	: To set Drive Sequence to Video 60-Hz
[SQM S01]	: To set Drive Sequence to Video
[WBI S01]	: To temporarily reset the Panel WB adjustment value to default (WBI S00 cancels this setting.)
[PGR S00]	: To set the gamma R value to that for Factory mode
[PGG S00]	: To set the gamma G value to that for Factory mode
[PGB S00]	: To set the gamma B value to that for Factory mode
[DIZ S03]	: Dither ON, L dither ON, noise OFF.
[$1800000001]	: LUT mode ON

Main flowchart (1)...Checking VOL OFFSET


[From Preparation]
Display RST MASK 09 (Pink). / [MKR S09]
Set VOL OFFSET to the tentative setting value minus 45. / [VOF ∗∗∗]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-1)
No
Display RST MASK 18 (Red 626). / [MKR S18]
Set VOL OFFSET to the tentative setting value plus 78. / [VOF ∗∗∗]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-2)
No
Display RST MASK 19 (Green 626). / [MKR S19]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-3)
No
Return VOL OFFSET to the tentative setting value. / [VOF ∗∗∗]
Determine the tentative setting value for VOL OFFSET as the final value.
From the Recovery flowchart (1-1) and (1-3)
[To the Main flowchart (2)]

Main flowchart (2)...Checking VOL YNOFSA D

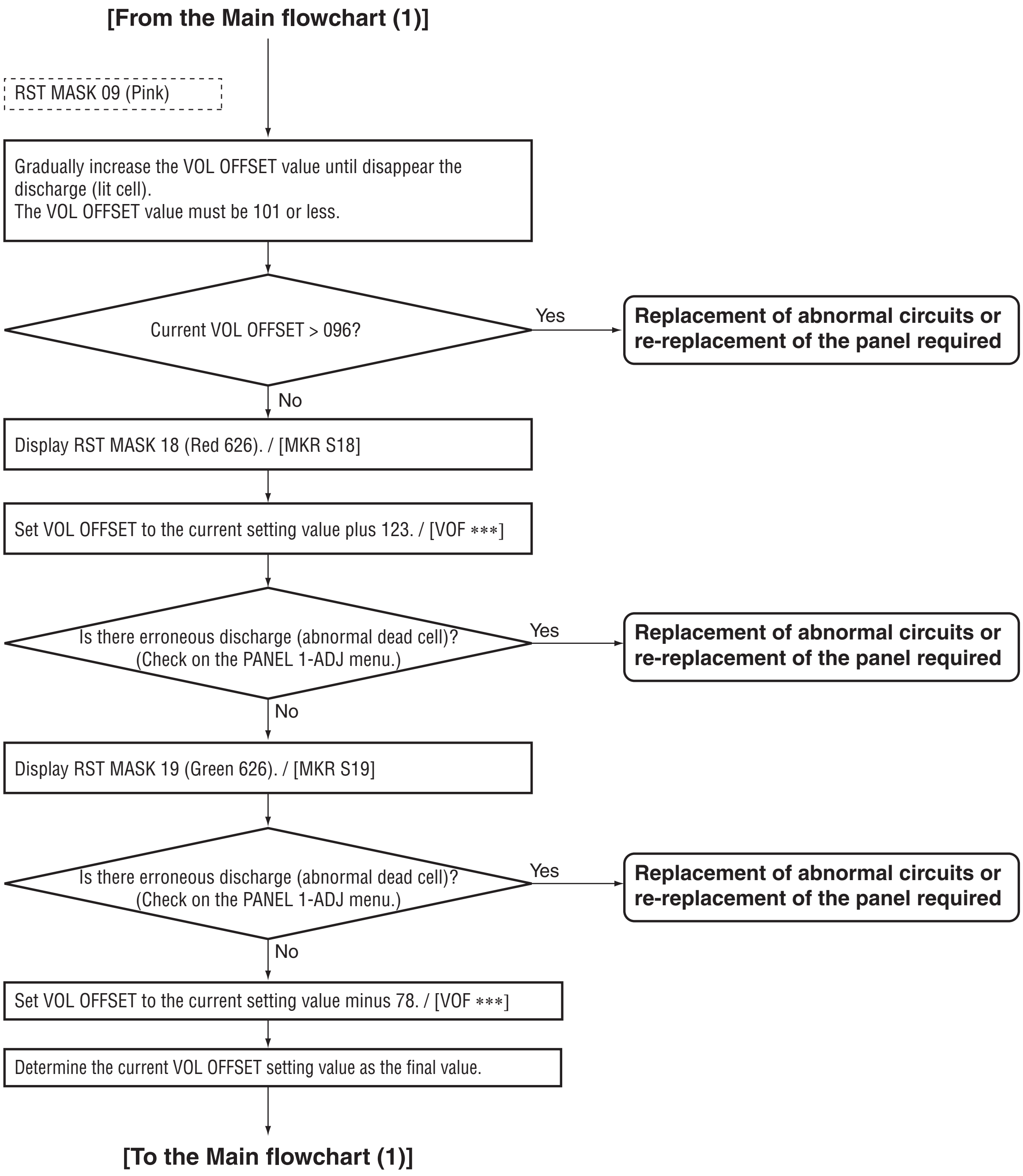

[From the Main flowchart (1)]
Display RST MASK 21 (Red 1023+). / [MKR S21]
Set VOL YNOFSA D to the tentative setting value 103. / [VYF 103]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-1)
No
Display RST MASK 22 (Green 1023+). / [MKR S22]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-2)
No
Display RST MASK 15 (Magenta 120). / [MKR S15]
Set VOL YNOFSA D to the tentative setting value 151. / [VYF 151]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-3)
No
Return the VOL YNOFSA D to the tentative setting value 128. / [VYF 128]
Determine the tentative setting value for VOL YNOFSA D as the final value.
From the Recovery flowchart (2-2) and (2-3)
[Adjustment completed]

Note:
Make sure that the following values become the final setting values.

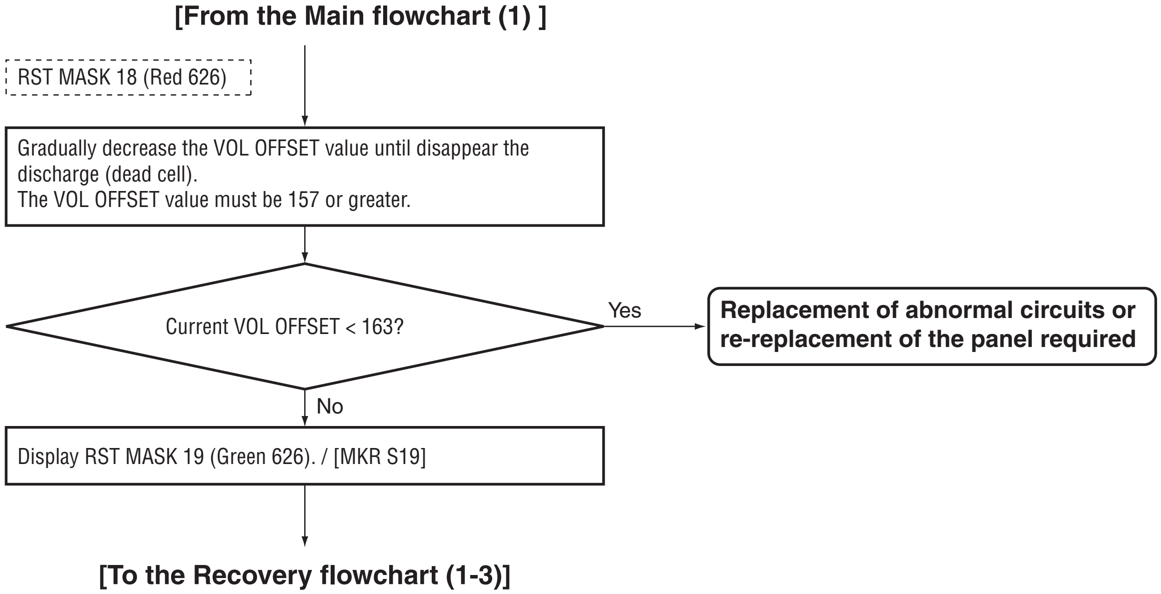
VOL SUS *1	VOL XPOSF2 *1
VOL OFFSET	VOL YNOFS1 D *1
VOL RST P *1	VOL YNOFS3 D *1
VOL XPOFS1 *1	VOL YNOFS4 D *1
	VOL YNOFS4 A

*1: The tentative setting value becomes the final value.

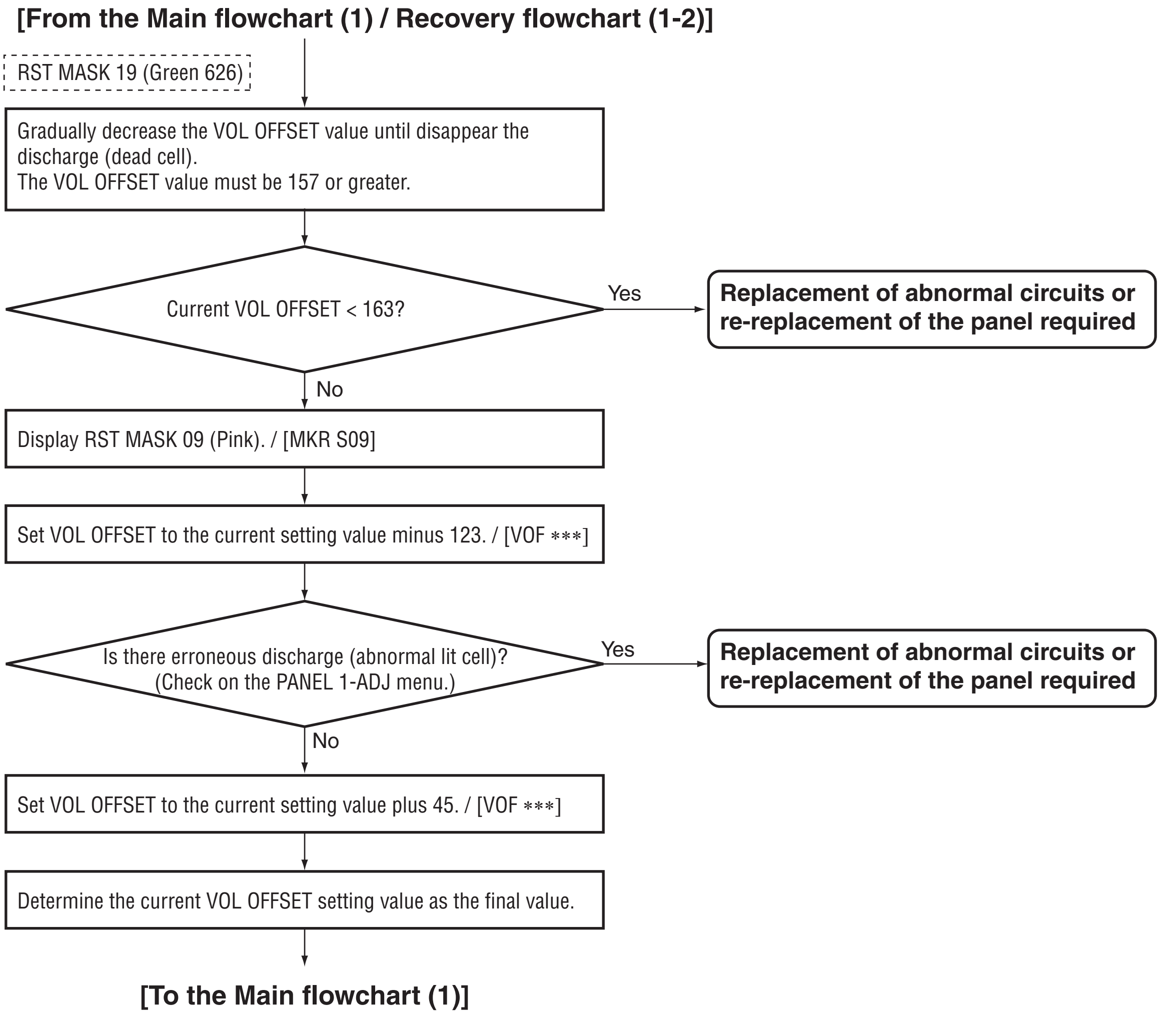
Recovery flowchart (1-1)...Changing the VOL OFFSET setting


[From the Main flowchart (1)]
RST MASK 09 (Pink)
Gradually increase the VOL OFFSET value until disappear the discharge (lit cell).
The VOL OFFSET value must be 101 or less.
Current VOL OFFSET > 096?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 18 (Red 626). / [MKR S18]
Set VOL OFFSET to the current setting value plus 123. / [VOF ∗∗∗]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 19 (Green 626). / [MKR S19]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Set VOL OFFSET to the current setting value minus 78. / [VOF ∗∗∗]
Determine the current VOL OFFSET setting value as the final value.
[To the Main flowchart (1)]

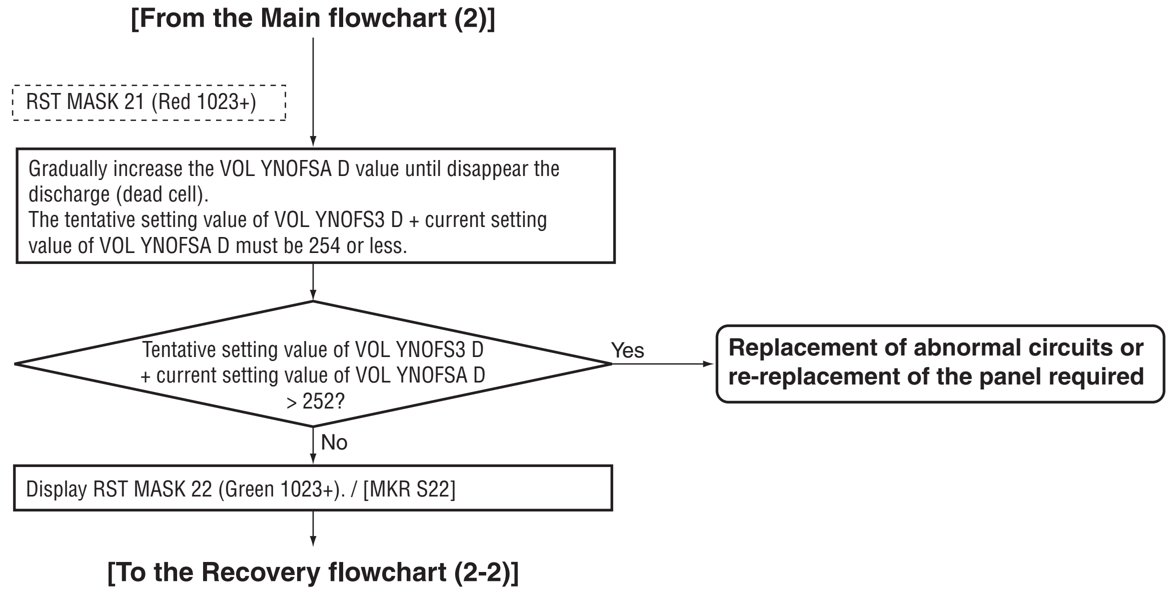
Recovery flowchart (1-2)...Changing the VOL OFFSET setting


[From the Main flowchart (1)]
RST MASK 18 (Red 626)
Gradually decrease the VOL OFFSET value until disappear the discharge (dead cell).
The VOL OFFSET value must be 157 or greater.
Current VOL OFFSET < 163?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 19 (Green 626). / [MKR S19]
[To the Recovery flowchart (1-3)]

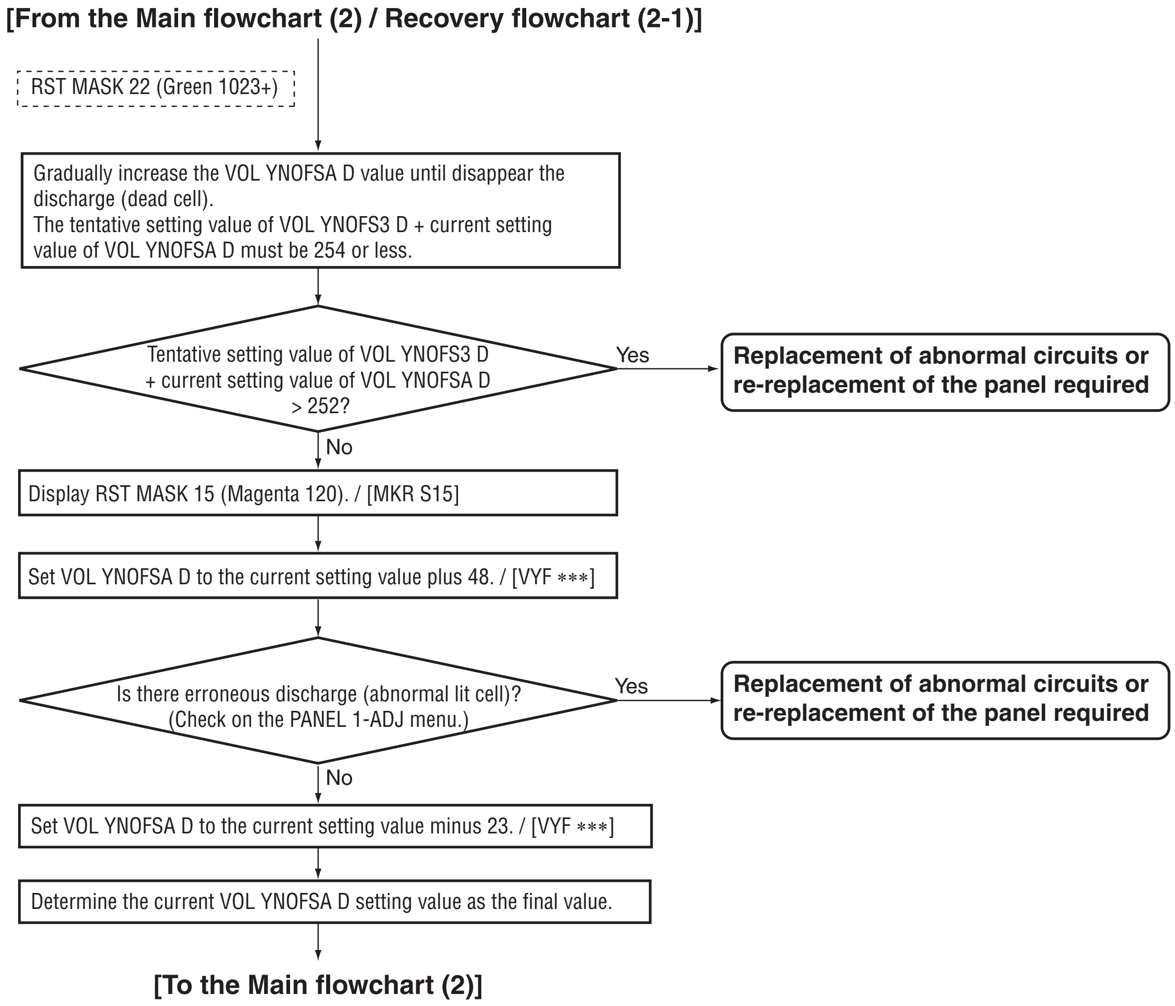
Recovery flowchart (1-3)...Changing the VOL OFFSET setting


[From the Main flowchart (1) / Recovery flowchart (1-2)]
RST MASK 19 (Green 626)
Gradually decrease the VOL OFFSET value until disappear the discharge (dead cell).
The VOL OFFSET value must be 157 or greater.
Current VOL OFFSET < 163?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 09 (Pink). / [MKR S09]
Set VOL OFFSET to the current setting value minus 123. / [VOF ***]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Set VOL OFFSET to the current setting value plus 45. / [VOF ***]
Determine the current VOL OFFSET setting value as the final value.
[To the Main flowchart (1)]

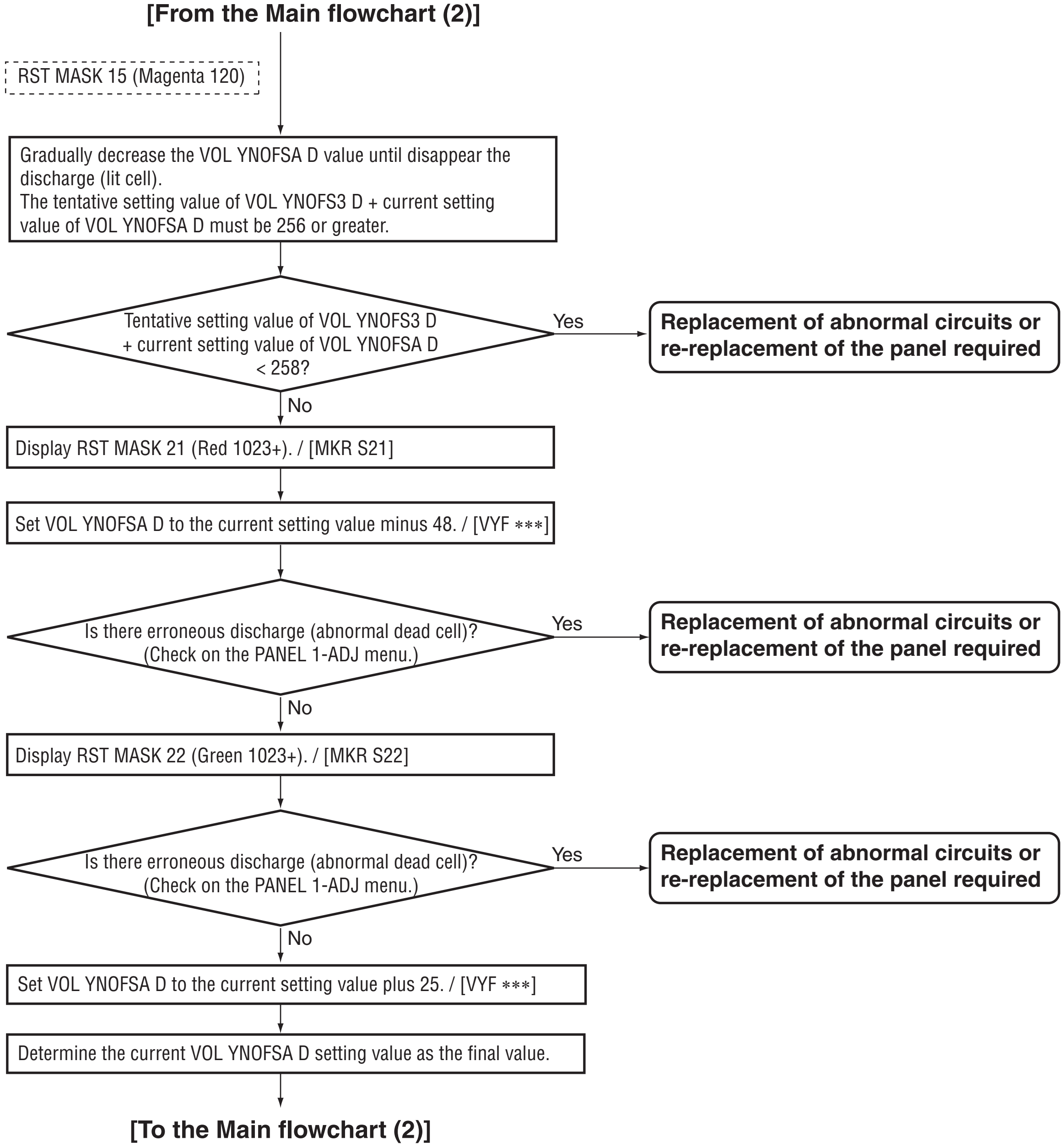
Recovery flowchart (2-1)...Changing the VOL YNOFSA D setting


[From the Main flowchart (2)]
RST MASK 21 (Red 1023+)
Gradually increase the VOL YNOFSA D value until disappear the discharge (dead cell).
The tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D must be 254 or less.
Tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D > 252?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 22 (Green 1023+). / [MKR S22]
[To the Recovery flowchart (2-2)]

Recovery flowchart (2-2)...Changing the VOL YNOFSA D setting


[From the Main flowchart (2) / Recovery flowchart (2-1)]
RST MASK 22 (Green 1023+)
Gradually increase the VOL YNOFSA D value until disappear the discharge (dead cell).
The tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D must be 254 or less.
Tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D > 252?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Display RST MASK 15 (Magenta 120). / [MKR S15]
Set VOL YNOFSA D to the current setting value plus 48. / [VYF ∗∗∗]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Set VOL YNOFSA D to the current setting value minus 23. / [VYF ∗∗∗]
Determine the current VOL YNOFSA D setting value as the final value.
[To the Main flowchart (2)]

Recovery flowchart (2-3)...Changing the VOL YNOFSA D setting



[From the Main flowchart (2)]

RST MASK 15 (Magenta 120)

Gradually decrease the VOL YNOFSA D value until disappear the discharge (lit cell).
The tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D must be 256 or greater.

Tentative setting value of VOL YNOFS3 D + current setting value of VOL YNOFSA D < 258?

Yes → **Replacement of abnormal circuits or re-replacement of the panel required**

No

Display RST MASK 21 (Red 1023+). / [MKR S21]

Set VOL YNOFSA D to the current setting value minus 48. / [VYF ∗∗∗]

Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)

Yes → **Replacement of abnormal circuits or re-replacement of the panel required**

No

Display RST MASK 22 (Green 1023+). / [MKR S22]

Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)

Yes → **Replacement of abnormal circuits or re-replacement of the panel required**

No

Set VOL YNOFSA D to the current setting value plus 25. / [VYF ∗∗∗]

Determine the current VOL YNOFSA D setting value as the final value.

[To the Main flowchart (2)]

6. EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEWS AND PARTS LIST for PDP-LX509A/YP1 is the same as YP except for the following:

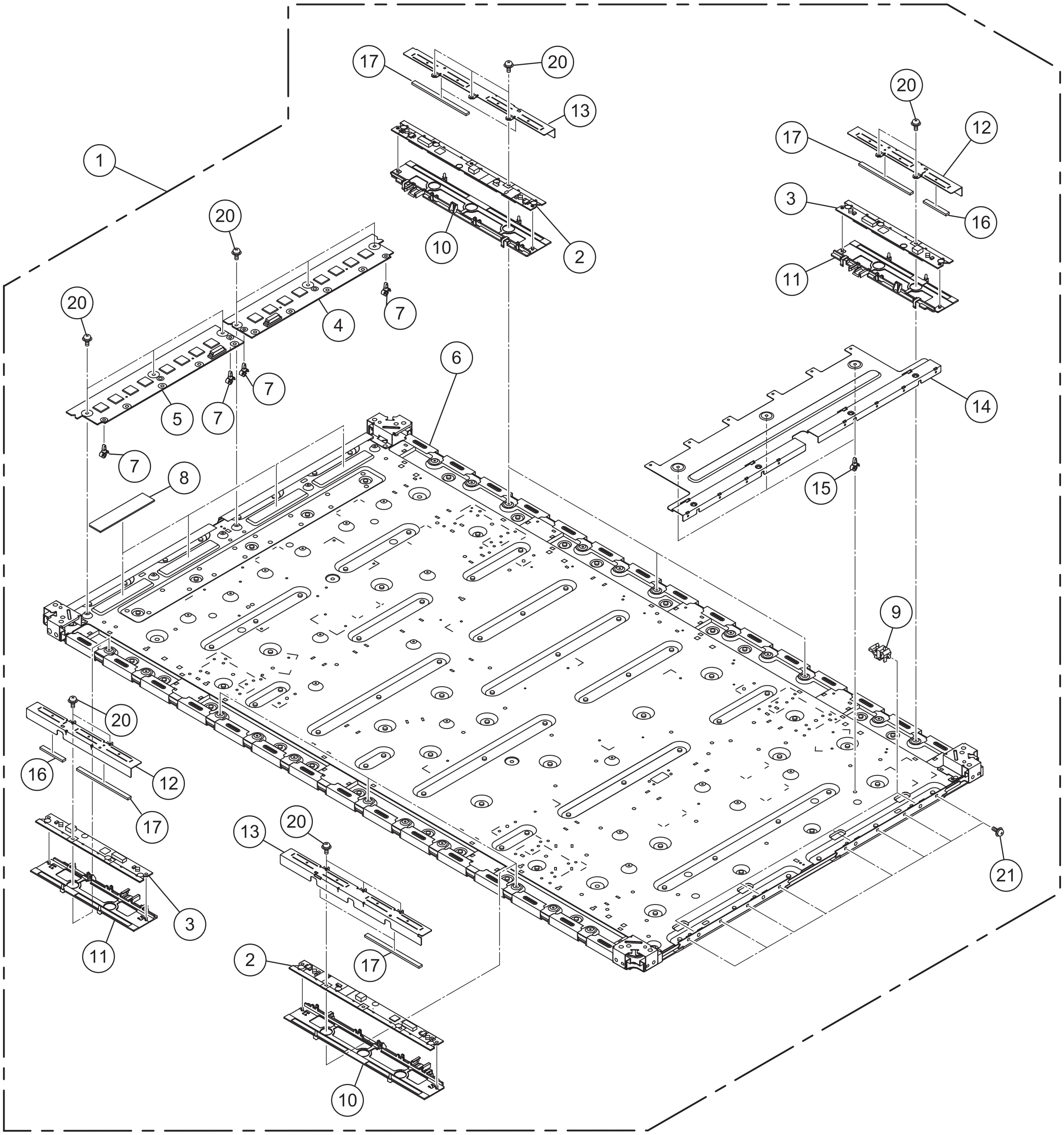
NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*
- *Nos. indicate the pages and Nos. in the service manual for the base model.*

6.1 CHASSIS SECTION (2/2)

PDP-LX509A/YP and YP1 are constructed the same except for the following:

Mark	No.	Symbol and Description	PDP-LX509A/YP	PDP-LX509A/YP1	Remarks
	P185-2	50F DIGITAL Assy	AWW1347	AWW1368	

6.2 PANEL CHASSIS SECTION



(1) PANEL CHASSIS SECTION PARTS LIST

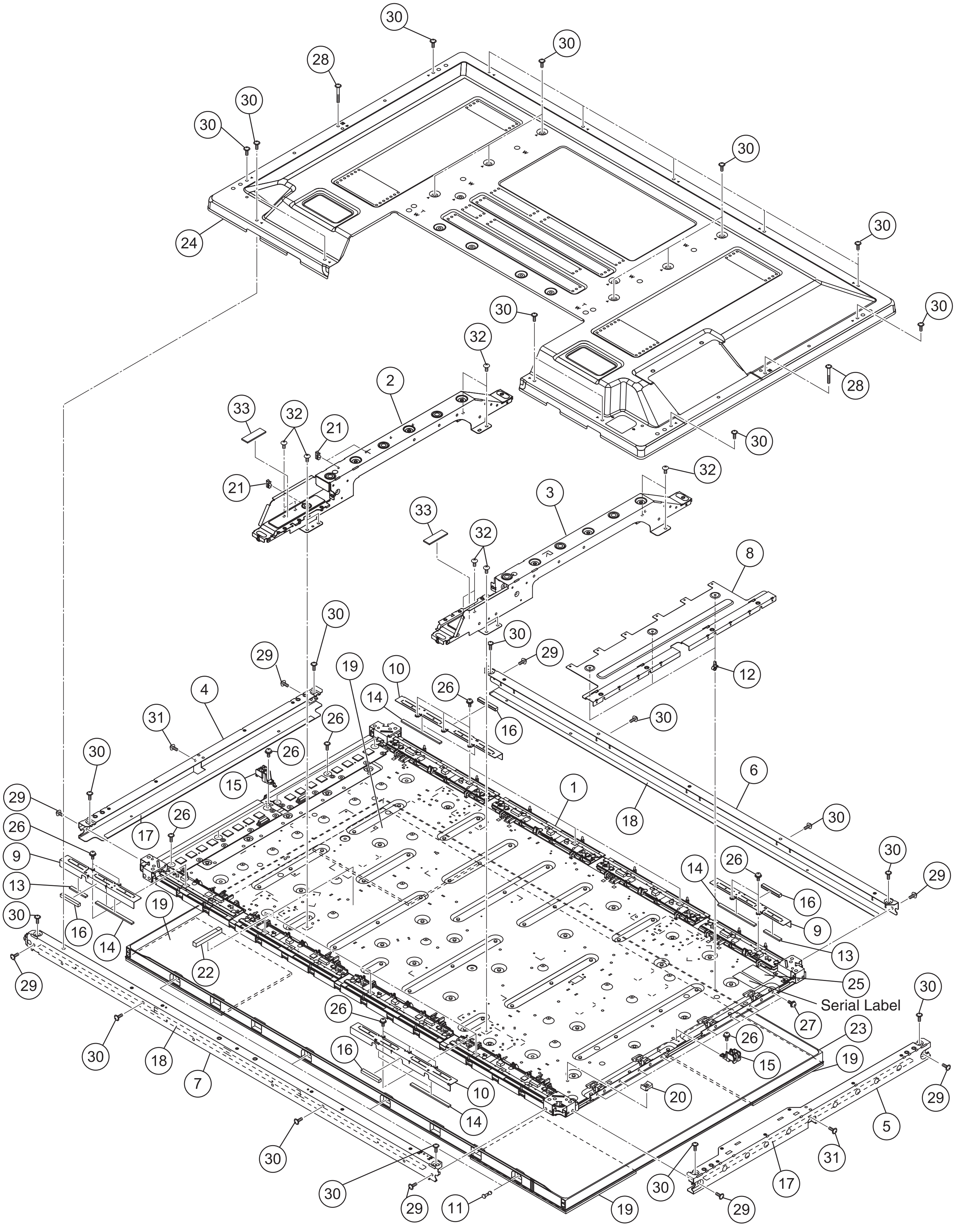
Mark	No.	Description	Part No.
NSP	1	P. Chassis (509FE) Assy	AWU1369
NSP	2	50F ADDRESS L Assy	AWW1348
NSP	3	50F ADDRESS S Assy	AWW1349
NSP	4	50F SCAN A Assy	AWW1350
NSP	5	50F SCAN B Assy	AWW1351
NSP	6	P. Panel (50FE) Assy	AWU1349
	7	Reuse PCB Spacer 4.5	AEC2148
	8	Heat Radiation Sheet	AEH1134
	9	Plate Holder	AMR3757
	10	Holder L Assy (509)	AMR3775
	11	Holder S Assy (509)	AMR3776
	12	Address Plate S (509)	ANG3129
	13	Address Plate L (509)	ANG3130
	14	Plate X (509)	ANG3128
	15	PCB Spacer (Reuse)	AEC2122
	16	Address Silicon TS	AEH1160
	17	Address Silicon TL	AEH1161
	18	• • • • •	
	19	• • • • •	
	20	Screw	ABA1351
	21	Screw	ABA1364

6.3 PDP SERVICE ASSY

PDP SERVICE ASSY 509FE : AWU1367

	YP	YP1
PDP SERVICE ASSY	AWU1342	AWU1367

● **Exterior Section**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Serial Label
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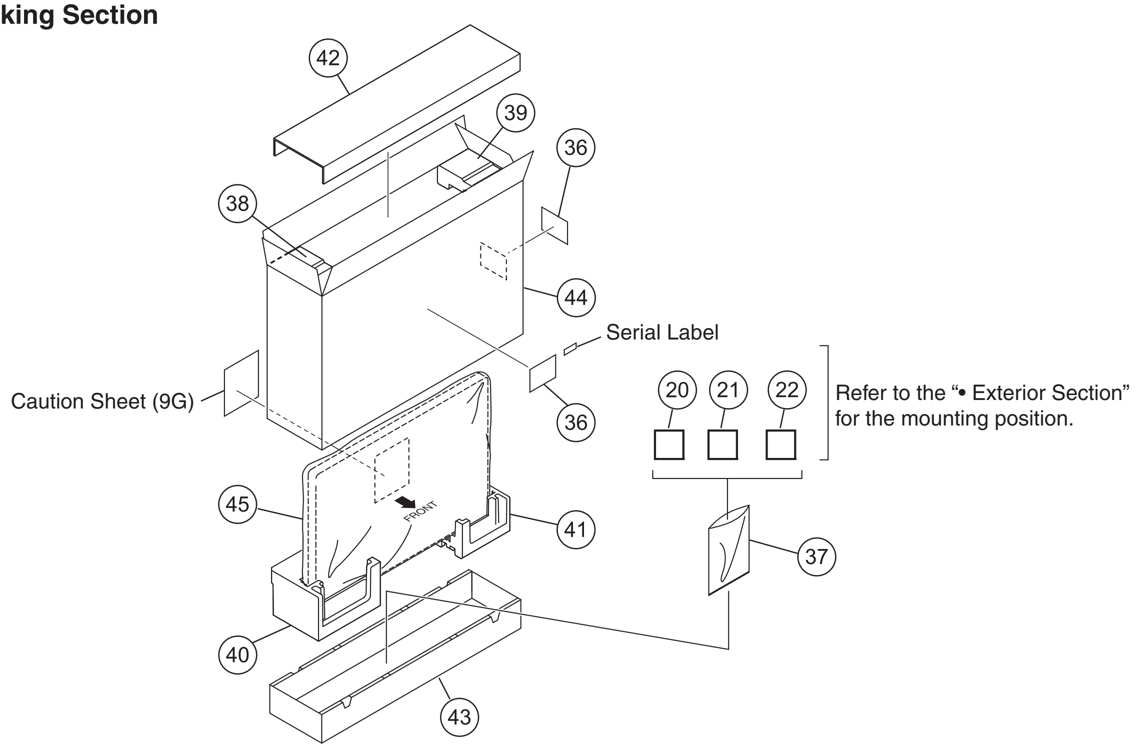
● Packing Section



PDP SERVICE ASSY PARTS LIST

Mark	No.	Description	Part No.
NSP	1	P. Chassis (509FE) Assy	AWU1369
	2	Sub Frame L Assy (50)	ANA2137
	3	Sub Frame R Assy (50)	ANA2140
	4	F. Chassis VL Assy 50	ANA2142
	5	F. Chassis VR Assy 50	ANA2151
	6	F. Chassis HT Assy 50	ANA2144
	7	F. Chassis HB 50	ANA2188
	8	Plate X (509)	ANG3128
	9	Address Plate S (509)	ANG3129
	10	Address Plate L (509)	ANG3130
	11	Rivet (Plastic)	AEC1877
	12	PCB Spacer (Reuse)	AEC2122
	13	Address Silicon TS	AEH1160
	14	Address Silicon TL	AEH1161
	15	Support Bracket	AMR3762
	16	Gasket ADH-FCH	ANK1850
	17	Front Gasket V50	ANK1963
	18	Front Gasket H50	ANK1964
	19	Service Pad	AEC2105
	20	Ferrite Core Holder	AEC1818
	21	Wire Clip	AEC1948
	22	Gasket (10 x 10 x 80)	ANK1974
NSP	23	Front Service Assy (509)	AMB3103
	24	Rear Case (509)	ANE1671
NSP	25	Drive Voltage Label	ARW1097
	26	Screw	ABA1351
	27	Screw	ABA1364
	28	Screw (3 x 25 P)	ABA1380
	29	Screw	ABZ30P080FTC
	30	Screw	AMZ30P060FTB
	31	Screw	APZ30P080FTB
	32	Screw	TBZ40P060FTC
	33	Stand Cushion	AED1340
	34	•••••	
	35	•••••	
	36	Caution Label	AAX3031
	37	Vinyl Bag	AHG1338
	38	Pad (509 T-L EU)	AHA2727
	39	Pad (509 T-R EU)	AHA2728
	40	Pad (509 B-L EU)	AHA2729
	41	Pad (509 B-R EU)	AHA2730
	42	Carton Board (509)	AHB1303
	43	Under Carton (5090)	AHD3673
	44	Upper Carton (509F-SV)	AHD3716
	45	Protect Sheet	AHG1331

7. PCB PARTS LIST

PCB PARTS LIST for PDP-LX509A/YP1 is the same as YP except for the following:

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47 k ohm (tolerance is shown by J = 5%, and K = 10%).
  560 Ω → 56 × 10^1 → 561 .... RD1/4PU$\boxed{5}\boxed{6}\boxed{1}$J
  47 kΩ → 47 × 10^3 → 473 .... RD1/4PU$\boxed{4}\boxed{7}\boxed{3}$J
  0.5 Ω → R50 .... RN2H$\boxed{R}\boxed{5}\boxed{0}$K
  1 Ω → 1R0 .... RS1P$\boxed{1}\boxed{R}\boxed{0}$K
  Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
  5.62 kΩ → 562 × 10^1 → 5621 .... RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F
- *Meaning of the figures and others in the parentheses in the parts list.*
  Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.
  IC 301 (A, 91, 111) IC NJM2068V

Unit Name: 50F DIGITAL ASSY (AWW1368)

Block Name: MAIN I/F BLOCK

SEMICONDUCTORS

Mark	No.	Description	Part No.
Q	3201		RN1901

MISCELLANEOUS

Mark	No.	Description	Part No.
⚠ L	3201	CHIP BEEDS FILTER	BTX1042
CN	3201	50P CONNECTER	AKM1399
CN	3202	40P CONNECTER	AKM1398
CN	3203	6PIN CONNECTOR	AKM1405
	3202	HEAT SINK B	ANH1645
	3203	THERMAL SHEET B	AEB1417

RESISTORS

Mark	No.	Description	Part No.
R	3201-3207,3211-3218		RAB4CQ100J
Other Resistors			RS1/16SS###J

CAPACITORS

Mark	No.	Description	Part No.
C	3201		ACG1150
C	3202		CKSSYB102K50
C	3203		CCSSCH101J50

Block Name: SQ ASIC BLOCK

SEMICONDUCTORS

Mark	No.	Description	Part No.
IC	3301		PEG383B
IC	3303		TC7SH08FUS1
IC	3304		TC7SH32FUS1

MISCELLANEOUS

Mark	No.	Description	Part No.
⚠ L	3301,3302	CHIP BEEDS FILTER	BTX1042
⚠ L	3303	CHIP BEEDS FILTER	BTX1039
⚠ L	3304-3307	CHIP BEEDS FILTER	BTX1042
⚠ X	3301	CRYSTAL (27 MHz)	ASS1215
CN	3301	CONNECTOR	CKS4835

RESISTORS

Mark	No.	Description	Part No.
R	3302,3307-3310		RAB4CQ101J
R	3306,3386		RAB4CQ103J
R	3313		RS1/16SS1000F
R	3314-3319		RAB4CQ100J
R	3321-3325		RAB4CQ470J
R	3332-3338,3344-3346		RAB4CQ220J
R	3351-3359,3361-3367		RAB4CQ220J
R	3371-3377		RAB4CQ220J
Other Resistors			RS1/16SS###J

CAPACITORS

Mark	No.	Description	Part No.
C	3301-3306,3309,3310		CKSSYB104K10
C	3307,3311,3331-3334		ACG1150
C	3312-3330,3335,3336		CKSSYB104K10
C	3337		CCSRCH471J50
C	3338,3340		ACG1149
C	3339,3341,3342		CKSSYB104K10
C	3343		ACG1150
C	3345-3355,3357-3386		CKSSYB104K10
C	3356,3392		CCSRCH470J50
C	3387-3389		CKSRYB105K6R3
C	3390,3391,3393-3395		CKSSYB104K10

Block Name: LVDS TX BLOCK 50

SEMICONDUCTORS

Mark	No.	Description	Part No.
IC	3401		PEG478A

MISCELLANEOUS

Mark	No.	Description	Part No.
⚠ L	3401-3407	CHIP BEEDS FILTER	BTX1042

RESISTORS

Mark	No.	Description	Part No.
R	3401		RS1/16SS5601F
R	3496		RS1/10SR221J
Other Resistors			RS1/16SS###J

CAPACITORS

Mark	No.	Description	Part No.
C	3401,3402		ACG1149
C	3403-3410,3415-3420		CKSSYB104K10
C	3411,3413,3421,3435		ACG1150
C	3423-3434,3436-3442		CKSSYB104K10
C	3443,3499		ACG1150
C	3444-3448,3451-3457		CKSSYB104K10

Block Name: ADDRESS CN BLOCK

SEMICONDUCTORS

Mark	No.	Description	Part No.
Q	3501,3504		DTC143EUA
Q	3502,3503,3506,3508		RN1901
D	3501-3504		DAN202U

Mark	No.	Description	Part No.
MISCELLANEOUS			
	CN 3501-3508,3510	26P CONNECTER	AKM1397
	CN 3509	50P CONNECTER	AKM1399
RESISTORS			
	R 3502,3504,3507		RAB4CQ101J
	R 3503,3505		RAB4CQ102J
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C 3501-3508,3510-3512		CKSSYB102K50
	C 3514,3516,3518-3520		CKSSYB102K50
Block Name: MODEULE UCOM BLOCK			
SEMICONDUCTORS			
	IC 3602		BR24L04FJ-W
	IC 3604		TC74VHC08FTS1
	IC 3605		MB88347LPFV-GBND
	IC 3607		TC74VHC123AFTS1
	IC 3608		TC74VHC126FTS1
	IC 3609,3610		TC74LCX541FTS1
	IC 3611		PST3628UR
	Q 3602		2SJ461A
	Q 3604		RN1902
	D 3601-3604		DAN202U
	D 3606-3608,3612		1SS352
	D 3609,3611		SML-310MT
	D 3610		SML-D12V8W
MISCELLANEOUS			
⚠	X 3601	CERAMIC OSCILLATOR	CSS1616
	CN 3601	5PIN CONNECTOR	AKM1418
	CN 3602,3603	CONNECTOR	CKS4828
RESISTORS			
	R 3603,3608		RAB4CQ222J
	R 3604,3607		RAB4CQ101J
	R 3606,3615		RAB4CQ470J
	R 3639,3666		RAB4CQ103J
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C 3601,3603-3606		CKSSYB104K10
	C 3602,3615,3635,3636		CCSSCH101J50
	C 3608-3612,3614,3618		CKSSYB104K10
	C 3619		CKSRYB103K50
	C 3620-3622		CKSRYB105K6R3
	C 3630		CKSSYB104K10
	C 3631		CKSRYB472K50
	C 3632-3634		CKSSYB102K50
Block Name: DD CON BLOCK			
SEMICONDUCTORS			
	IC 3801		BD8606FV
	IC 3802		TC74VHC08FTS1
	IC 3803		S-1170B18UC-OTD
	IC 3804		BD12KA5WFP
	IC 3805		PST3628UR
	IC 3808		PQ200WNA1ZPH
	Q 3801,3803		DTC144EUA
	Q 3802		RN1901
	Q 3804		DTC143EUA
	Q 3841,3861,3881		SP8M4

Mark	No.	Description	Part No.
	D 3801,3802,3882		1SS352
	D 3841,3861,3881		RB060M-30
MISCELLANEOUS			
⚠	L 3801	CHIP BEEDS FILTER	BTX1039
⚠	L 3841,3881	INDUCTOR	ATH1235
⚠	L 3861	INDUCTOR	BTH1110
	CN 3801	10PIN CONNECTOR	AKM1409
	CN 3802	CONNECTOR	AKM1277
	FU 3801	CHIP FUSE	AEK1087
RESISTORS			
	R 3801,3802		RAB4CQ101J
	R 3815		RS1/10SR4301D
	R 3816		RS1/10SR1301D
	R 3828		RS1/10SR2702D
	R 3832		RS1/10SR221J
	R 3836		RS1/16SS2202F
	R 3837,3838		RS1/16SS3901F
	R 3841,3843,3863		RS1/10SR3302D
	R 3844		RS1/10SR4702D
	R 3845		RS1/10SR2002D
	R 3861		RS1/10SR1503D
	R 3862,3882		RS1/10SR3001D
	R 3864,3883		RS1/10SR3902D
	R 3865		RS1/10SR1003D
	R 3881		RS1/10SR1203D
	R 3885		RS1/10SR7502D
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C 3801-3804,3808,3821		CKSSYB102K50
	C 3805,3806		CKSSYB104K10
	C 3807		CKSRYB472K50
	C 3809		CKSRYB104K16
	C 3810,3811,3841,3842		ACG1150
	C 3812,3814,3824		CKSRYB105K6R3
	C 3813,3815,3843,3847		ACG1149
	C 3817,3825,3826		DCH1165
	C 3818		CCSSCH101J50
	C 3820,3844		CCSRCH221J50
	C 3845,3888		CKSRYB682K50
	C 3848		CKSRYB153K50
	C 3861,3862,3881,3882		ACG1150
	C 3863,3867,3883,3887		ACG1149
	C 3864		CCSRCH470J50
	C 3865		CKSRYB152K50
	C 3868		CKSRYB103K50
	C 3884		CCSRCH620J50
	C 3885		CKSRYB182K50